UNIVERSITY OF
ILLINOIS LIBRARY
AT URBANA-CHAMPAIGN
BOOKSTACKS

THE HECKMAN BINDERY, INC.
North Manchester, Indiana

LW

FONT	SLOT	TITLE
LW	22	ARGONNE
	21	COMPUTING
	20	NEWSLETTER
1W	8	19

BINDING COPY

PERIODICAL: ☐ CUSTOM ☐ STANDARD ☐ ECONOMY ☐ THESIS

BOOK: ☐ CUSTOM ☐ MUSIC ☐ ECONOMY

AUTH. 1ST ☐

NO. VOLS. THIS TITLE

LEAF ATTACH.

ACCOUNT	LIBRARY	NEW	RUB OR SAMPLE	TITLE I.D.	FOIL	COLOR MATERIAL
66672	001	✓		67073	WHI	990

ACCOUNT NAME
UNIVERSITY OF ILLINOIS

ISSN.

ACCOUNT INTERNAL I.D.
A22460205

NOTES	BINDING FREQUENCY	WHEEL	SYS. I.D.	
		1	3	14547

IN SLIP

CLOTH EXT.	GUM	FILLER	STUB

LEAF ATTACH.

JOB NO. H277

PIECE NO. 23

000032021

HERTZBERG — NEW METHOD, INC. EAST VANDALIA ROAD, JACKSONVILLE, ILL. 62650

MB5Y1

TITLE NO.	ACCOUNT NO.	LOT AND TICKET NO.
A-2246.0205	07200-45A	00- 14 M2

43-11 ARGONNE * COMPUTING * NEWSLETTER *

H277
12/9/94

43-24 19*1988*
42-28 DOC.* E 1.86/5:*

5t

19*
CLOTH COLOR

01STX4
HEIGHT

0075 BD W/O NO.1-5*BIND IN SLIP*

11 1/8

CHARGING INFORMATION SPECIAL WORK AND PREP.

STUBBING		FRONT COVER		HAND ADHESIVE		MAP POCKET PAPER	
HAND SEW		NO TRIM		LENGTHWISE		MAP POCKET CLOTH	
THRU SEW		PAGES LAMINATED		FOREIGN TITLE		SPECIAL WORK	
THRU SEW ON TAPE		EXTRA THICKNESS		LINES OF LETTERING		REMOVE TATTLE TAPE	

HEIGHT	PICA	WRAP

MB5Y1

THE HECKMAN BINDERY, INC.
North Manchester, Indiana LW

FONT	SLOT	TITLE
1W	22	ARGONNE
	21	COMPUTING
	20	NEWSLETTER
1W	8	19
	7	1988
1W	3	Doc.
	2	E 1.86/5:
	1	19
		<IMPRINT>
7W		U. of ILL.
		LIBRARY
		URBANA
		<DEPT. I. D.>
1W		STX4/45A/14

BINDING COPY

PERIODICAL: ☐ CUSTOM ☐ STANDARD ☐ ECONOMY ☐ THESIS
BOOK: ☐ CUSTOM ☐ MUSIC ☐ ECONOMY
AUTH. 1ST ☐
NO. VOLS. THIS TITLE
LEAF ATTACH.

ACCOUNT 66672 LIBRARY 001 NEW ✓ RUB OR SAMPLE
TITLE I.D. 67073
COLOR: FOIL WHI MATERIAL 990
ACCOUNT NAME UNIVERSITY OF ILLINOIS
ISSN.
ACCOUNT INTERNAL I.D. A22460205
I.D. #2
NOTES
BINDING FREQUENCY 1
WHEEL 1
SYS. I.D. 3 14547
COLLATING
ADDITIONAL INSTRUCTIONS BD W/O NO. 1-5 BIND IN SLIP
SEP. SHEETS
PTS. BD. PAPER
TAPE STUBS
CLOTH EXT.
FILLER: GUM STUB
LEAF ATTACH.
POCKETS: PAPER BUCK CLOTH
SPECIAL PREP.
INSERT MAT.
ACCOUNT LOT NO.
JOB NO. H277
PRODUCT TYPE 11 IA
ACCOUNT PIECE NO.
PIECE NO. 23
HEIGHT
GROUP CARD 1
VOL. THIS TITLE
COVER SIZE X 5
000032021

DOC.
E1.86/5:
19

45A-14

ARGONNE COMPUTING NEWSLETTER

Published Monthly by Argonne National Laboratory Computing Services

VOLUME 19 NUMBER 6 JUNE 1988

COMPUTING COMMENTS

Advanced Computing Research Facility Installs Connection Machine 2513
Users Urged To Release Unneeded Tape Volumes 2513
Computing Center Fourth of July Holiday Schedule 2513
Mathematics and Computer Science Programming Techniques Seminar 2514
Mathematics and Computer Science Parallel Computing Class 2514
Computing Classes Scheduled for June and July 1988 2514

CMS NEWS

VM/SP Release 5 CMS Available for Testing 2515
Waterloo C Version 3.0 Compiler Available for Testing in CMS 2515

CRAY NEWS

VAX Supercomputer Gateway Testing 2516
Tapes Available in UNICOS 2517
Availability of Guide to UNICOS at ANL 2518

TELECOMMUNICATIONS NEWS

New Additions to BITnet University Network 2518

VAX/VMS NEWS

VAX NJE Users Now May Specify Account Alias When Submitting MVS Batch Jobs 2518
Computer-Based Instruction Courses for EVE and Datatrieve Available
on the VAX 8700 Computer 2519

BITS & BYTES

RACF Passwords Now Stored in Encoded Format 2519

USERS GROUP HIGHLIGHTS

Minutes of Computer Users Group Meeting Held May 3, 1988 2519
Minutes of Macintosh Users Group Meeting Held May 11, 1988 2521
Minutes of Graphic Arts Users Group Meeting Held May 13, 1988 2522

COMPUTING CENTER STATISTICS

COMPUTING CENTER TELEPHONE NUMBERS AND SERVICE SCHEDULE

SUBJECT INDEX

APPENDIX

Computing Center Classes

DEPOSITORY

DEC 27 1988

UNIVERSITY
AT URBANA-CHAMPAIGN

COMPUTING SERVICES

Argonne National Laboratory
Building 221
Argonne, Illinois 60439

Computing Services provides the computing and communications foundation for Argonne's scientific and technical programs and administrative activities. We operate computers to provide interactive and batch services, operate the Laboratory's voice and data communications systems, and perform analysis and programming services. Computing Services coordinates the development of and provides assistance for an integrated hierarchy of systems: personal desktop computers, distributed minicomputers, large-scale central computers, and supercomputers; we have special responsibility for placing the Laboratory in a position to exploit technological advances tied to state-of-the-art computing. Computing Services provides leadership in optimizing computing and information services and disseminating computer-related technologies throughout the Laboratory. Computing Services implements computing policy formulated by the Argonne Computing Policy Committee, for which we draft plans and prepare recommendations; and we work with the other Argonne divisions and programs, user groups, and Laboratory management to determine specific needs and priorities.

		Room	Phone	Electronic Mail Address
Manager of Computing Services	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Networks	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Telecommunications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Information Systems	Diane Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	A209	2-8075	B31048 AT ANLVM
Human Resource and Plant Services Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Material Systems	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Information Technology Resources Planning	Mike Boxberger	A245	2-5639	B34540 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Rich Slade	B139	2-7674	B32848 AT ANLVM

Computing Services operates a Cray X-MP/14 with UNICOS 3.0, a DEC VAX-11/750, a DEC VAX 8700, a DEC VAX 8250, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 4, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

The *Argonne Computing Newsletter* is published monthly by Computing Services, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by Debbie Walsh with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Doc.
E 1.86/5:
19

COMPUTING COMMENTS

ADVANCED COMPUTING RESEARCH FACILITY INSTALLS CONNECTION MACHINE

The Mathematics and Computer Science Division has acquired a Connection Machine-2 (CM-2) multiprocessor from Thinking Machines Corporation, Cambridge, Massachusetts, and has upgraded the Alliant FX/8 system at the Advanced Computing Research Facility (ACRF). These enhancements augment the Division's ability to conduct research in advanced scientific computing on diverse and innovative computer systems.

The CM-2 is the first massively parallel computer in the ACRF. It is a 16,384 bit-processor system with 512 floating-point hardware units and a total of 128 megabytes of memory (8 kilobytes at each node), which is capable of a peak performance of several hundred megaflops. Funding for the CM-2 was provided jointly by Argonne National Laboratory and the California Institute of Technology (CalTech) Concurrent Computation Project. High-speed computer network connections will be established between CalTech and Argonne to accommodate large-scale computations.

This volume is bound without no.1, no.2, no.3, no.4, no.5
which is/are unavailable.

2-1-84

interactive use through the Mathematics and Computer Science Division network.

The Mathematics and Computer Science Division sponsors classes periodically on parallel programming in general and the use of the ACRF machines in particular. Persons interested in attending these classes or in using the multiprocessors for research should call Teri Huml at extension 2-7163.

USERS URGED TO RELEASE UNNEEDED TAPE VOLUMES

Computing Services is reorganizing the central tape library to ensure the storage of tapes under optimum conditions. At this time especially, we urge you to release any tapes that you no longer need. An added incentive to the user is lower tape storage charges.

We ask that users review tapes that are over five years old, because magnetic tape can deteriorate in as little as three years. If you have older tapes with data that you wish to keep, we suggest copying them to a new scratch tape. You should also be sure to keep at least two copies of any "irreplaceable" tapes to protect against accidental damage to the data.

To display the menu of options, which includes producing a report summary of your tapes and expiring tape volumes, enter (in Wylbur)

```
DO TAPELIBR
```

R

ENTER FOURTH OF JULY EDULE

will be *attended* during the Fourth
d and holiday, but only by a single
aturday, July 2, 1988, at 12:30 a.m.
, July 5, 1988, at 12:30 a.m.
72-hour period, all the interactive
tch services will be operational on
as they are on weekend nights when
or is available. During this holiday
S job classes and all VMS and
queues will be eligible to run. Weekend computing rates will prevail from Saturday, July 2, 1988, at 12:01 a.m. until Tuesday, July 5, 1988, at 7:00 a.m.

Users who have special requirements for service beyond what has been scheduled should call Computer Operations (extension 2-5437) to discuss their requirements in advance.

COMPUTING SERVICES
Argonne National Laboratory
Building 221
Argonne, Illinois 60439

Computing Services provides the computing and communications foundation for Argonne's scientific and technical programs and administrative activities. We operate computers to provide interactive and batch services, operate the Laboratory's voice and data communications systems, and perform analysis and programming services. Computing Services coordinates the development of and provides assistance for an integrated hierarchy of systems: personal desktop computers, distributed minicomputers, large-scale central computers, and supercomputers; we have special responsibility for placing the Laboratory in a position to exploit technological advances tied to state-of-the-art computing. Computing Services provides leadership in optimizing computing and information services and disseminating computer-related technologies throughout the Laboratory. Computing Services implements computing policy formulated by the Argonne Computing Policy Committee, for which we draft plans and prepare recommendations; and we work with the other Argonne divisions and programs, user groups, and Laboratory management to determine specific needs and priorities.

		Room	Phone	Electronic Mail Address
Manager of Computing Services	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Networks	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Telecommunications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Information Systems	Diane Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	A209	2-8075	B31048 AT ANLVM
Human Resource and Plant Services Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Material Systems	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Information Technology Resources Planning	Mike Boxberger	A245	2-5630	[illegible]
Systems Programming	Dc			
User Services	Frc			
Computer Use Authorizations	Fra			
Consultants				
Documentation Advice				
Education and Assistance	Ric			

Computing Services operates a Cray X-MP/14 with UNICC
two IBM 3033s (one with an IBM 3042 Attached Processor)
IBM computers includes VM/SP CMS Release 4, MVS SP
(TSO), and OBS Wylbur Release 7.0. Manuals, back copies
available at the Document Distribution Counter (Building 2
and requesting a copy). To be added to the *Newsletter* mailin

The *Argonne Computing Newsletter* is published monthly
Illinois 60439; edited, prepared, and formatted by Debbie Wal
This *Newsletter* was prepared as an account of work sponsc Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Doc.
E 1.86/5:
19

COMPUTING COMMENTS

ADVANCED COMPUTING RESEARCH FACILITY INSTALLS CONNECTION MACHINE

The Mathematics and Computer Science Division has acquired a Connection Machine-2 (CM-2) multiprocessor from Thinking Machines Corporation, Cambridge, Massachusetts, and has upgraded the Alliant FX/8 system at the Advanced Computing Research Facility (ACRF). These enhancements augment the Division's ability to conduct research in advanced scientific computing on diverse and innovative computer systems.

The CM-2 is the first massively parallel computer in the ACRF. It is a 16,384 bit-processor system with 512 floating-point hardware units and a total of 128 megabytes of memory (8 kilobytes at each node), which is capable of a peak performance of several hundred megaflops. Funding for the CM-2 was provided jointly by Argonne National Laboratory and the California Institute of Technology (CalTech) Concurrent Computation Project. High-speed computer network connections will be established between CalTech and Argonne to accommodate large-scale computations.

The 8-vector-processor Alliant FX/8 has been upgraded from 32 to 64 megabytes of memory. This machine is used to study parallel programming methodologies and to conduct both numerical and non-numerical experiments.

In addition to these systems, the ACRF features five other commercial multiprocessors: an Encore Multimax (with 20 processors sharing 24 megabytes of memory), an Intel iPSC/d5 five-dimensional hypercube system (with 32 vector nodes, each with 512 kilobytes of memory), an Intel iPSC/d4 four-dimensional hypercube (with 16 nodes, each with 1.5 megabytes of memory), and an Active Memory Technology DAP-510 (with ,024 processors, each with 8 kilobytes of memoy). All systems run a version of Unix (with both Fortran and C compilers) and are available for interactive use through the Mathematics and Computer Science Division network.

The Mathematics and Computer Science Division sponsors classes periodically on parallel programming in general and the use of the ACRF machines in particular. Persons interested in attending these classes or in using the multiprocessors for research should call Teri Huml at extension 2-7163.

USERS URGED TO RELEASE UNNEEDED TAPE VOLUMES

Computing Services is reorganizing the central tape library to ensure the storage of tapes under optimum conditions. At this time especially, we urge you to release any tapes that you no longer need. An added incentive to the user is lower tape storage charges.

We ask that users review tapes that are over five years old, because magnetic tape can deteriorate in as little as three years. If you have older tapes with data that you wish to keep, we suggest copying them to a new scratch tape. You should also be sure to keep at least two copies of any "irreplaceable" tapes to protect against accidental damage to the data.

To display the menu of options, which includes producing a report summary of your tapes and expiring tape volumes, enter (in Wylbur)

```
DO TAPELIBR
```

or (in CMS):

```
TAPELIBR
```

COMPUTING CENTER FOURTH OF JULY HOLIDAY SCHEDULE

Computers will be *attended* during the Fourth of July weekend and holiday, but only by a single operator from Saturday, July 2, 1988, at 12:30 a.m. until Tuesday, July 5, 1988, at 12:30 a.m. Throughout this 72-hour period, all the interactive systems and batch services will be operational on the same basis as they are on weekend nights when only one operator is available. During this holiday period, all MVS job classes and all VMS and UNICOS job queues will be eligible to run. Weekend computing rates will prevail from Saturday, July 2, 1988, at 12:01 a.m. until Tuesday, July 5, 1988, at 7:00 a.m.

Users who have special requirements for service beyond what has been scheduled should call Computer Operations (extension 2-5437) to discuss their requirements in advance.

MATHEMATICS AND COMPUTER SCIENCE SIMD PROGRAMMING TECHNIQUES SEMINAR

The Mathematics and Computer Science Division will hold a two-day seminar (Monday and Tuesday, July 25-26, 1988) on techniques for programming the two single-instruction multiple-data (SIMD) machines in the Advanced Computing Research Facility (ACRF): the Connection Machine-2 (CM-2) and the Distributed Array Processor (DAP). Some previous experience in programming other parallel computers is necessary. The seminar will cover SIMD programming models and programming in DAP Fortran, C*, C/Paris, and Fortran/Paris. The seminar will also include an opportunity to run programs on the 16,384 processor CM-2 and the 1,024 processor DAP 510.

To register for the seminar, contact:

Teri Huml
Mathematics and Computer Science Division
Argonne National Laboratory
Argonne, IL 60439-4844
(312) 972-7163
huml@anl-mcs.arpa

There will be a $25.00 charge for this class, and no financial assistance for attendees is available.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m., on Wednesday, Thursday, and Friday, June 15-17, 1988) on how to use the Argonne Advanced Computing Research Facility (ACRF). The class will instruct users on how to write programs for the parallel computer systems in the ACRF.

The class will cover the following topics: (1) automatic parallelizing compilers, (2) packages for portable parallel programming (including the Monitor package and the Schedule package), (3) hypercube programming, (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of the Unix file system, an editor, and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at extension 2-7163 or at electronic mail address huml@anl-mcs.arpa. There is a $25.00 charge for this class.

COMPUTING CLASSES SCHEDULED FOR JUNE AND JULY 1988

During June and July 1988, Computing Services will offer one demonstration and seven classes. The schedule is appended to this *Newsletter*. To register, call or visit the Computing Services Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. Computing Services will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, and computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and to use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Introduction to Wylbur for Text Editing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and to modify programs, data, and text; to submit MVS batch jobs; and to review MVS batch output.

Introduction to UNICOS and Shell Programming (two 3-hour sessions) is for new users who want basic information on UNICOS and shell programming on the Cray X-MP/14 high performance computer. The class covers introductory material on the Unix file system, space management, and shell programming.

Using the Cray X-MP from the MVS Station (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS and Shell Programming" by providing examples of how to submit various Cray batch jobs from other ANL computing systems (including CMS, MVS, and VAX/VMS).

Using the Cray X-MP from the VAX Supercomputer Gateway (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and manage Cray files from the recently installed Digital Equipment Corporation (DEC) VAX station. Like the counterpart MVS station class, this class requires familiarity with UNICOS and shell programming. The class is designed for using the VAX station to access the Cray in a batch environment (although some basic instruction for interactively using UNICOS will be provided).

Cray X-MP Architecture and Vectorization Techniques (two 3-hour sessions) is for users who want to optimize their Fortran program to take full advantage of the Cray X-MP/14 high performance computer. Topics include Cray architecture, vectorization, optimization, and code examples.

CMS NEWS

VM/SP RELEASE 5 CMS AVAILABLE FOR TESTING

The CMS portion of VM/SP Release 5, which contains all the functions currently available in Release 4 CMS, is now available for testing with the production version of the VM/SP Release 5 CP Operating System. In addition to the corrective maintenance included in this latest release, VM/SP Release 5 CMS offers enhancements in VM program-to-VM program communication, CMS Session Services, Message Services, and Command Services.

Users can test the CMS portion of VM/SP Release 5 by executing the TESTCMS exec that resides on the Y-disk. To return to the current version of CMS from VM/SP Release 5, logoff and then logon to CMS again. We encourage users to test existing applications with the CMS portion of VM/SP Release 5. Please report any difficulties to the User Services consultants (Building 221, Room A-139, extension 2-5405). Computing Services will install VM/SP Release 5 CMS as the production system on July 11, 1988.

The *VM/System Product CMS Primer* (SC24-5236) and the *VM/System Product CMS Primer for Line-Oriented Terminals* (SC24-5242) are updated for Release 5. These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

WATERLOO C VERSION 3.0 COMPILER AVAILABLE FOR TESTING IN CMS

Computing Services has installed Version 3.0 of the Waterloo C Compiler for testing on the C 2 minidisk in CMS. We have also installed the Waterloo C interactive debugger. Waterloo C Version 3.0 is a major improvement over Version 1.3 of Waterloo C (the production C compiler available in CMS). After this initial test period, Version 3.0 of Waterloo C will become the production version (presumably in June 1988).

Version 3.0 of Waterloo C conforms to the ANSI draft standard for the C language. You can invoke Version 3.0 directly from within the XEDIT editor. Version 3.0 has a powerful full screen interactive debugger, which may be used from a line-by-line terminal as well. Additional features include a load module execution profiler (to aid in improving performance of your programs); a source code formatter; and the source code maintenance utilities DIFF, GREP, and MAKE, which you will find in Unix systems. (Computing Services has obtained the interactive debugger and the program maintenance utilities for a one-month trial period.)

To use Version 3.0 of Waterloo C in CMS, LINK and ACCESS the C 2 minidisk. Invoke the C compiler by entering:

```
CW filename [filetype [filemode]] (options
```

where "filename" is the CMS filename of the file to be compiled, "filetype" is the CMS filetype (if filetype is omitted, the system assumes it to be C), "filemode" is the CMS filemode (if filemode is omitted, it is assumed to be *), and "options" are compiler options (such as DBG, which creates a file of filetype DBGINFO for use by the Waterloo C debugger). Link your program with the Waterloo C run-time library by entering:

```
LINKC filename
```

To invoke the Waterloo C debugger or to use the program maintenance utilities, enter:

```
CDEBUG filename (options
```

where "filename" is the CMS filename of the module to be debugged, and "options" are debugger options.

Computing Services has available for distribution the *Waterloo C VM/CMS User's Guide* and the *Waterloo C VM/CMS Run Time Library*. These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). Extensive online HELP is available for the C run-time library and the interactive debugger. For help in using the C compiler, LINK and ACCESS the C 2 minidisk and enter:

```
HELP C MENU
```

For help in using the C interactive debugger, enter:

```
HELP CDEBUG MENU
```

Help in using the C debugger is also available from within a debugging session by pressing PF10.

CRAY NEWS

VAX SUPERCOMPUTER GATEWAY TESTING

Computing Services has installed the VAX Supercomputer Gateway, consisting of a Digital VAX 8250 computer with a custom interface and VAX/VMS Station software from Cray Research, Inc. This VAX gateway to the Cray X-MP/14 computer is DECnet node ANLVG and a member of the central VAX cluster and provides access to the Cray resources for users of the VAX cluster.

The Cray VAX/VMS Station software creates an environment for interactive and batch use of the Cray. After initial testing by Computing Services and a small group of "pioneers" who have agreed to test the gateway under potentially disruptive conditions, the VAX gateway will become available to all users of the central VAX 8700. Users who have accounts on the VAX 8700 will use their existing account to logon to the VAX gateway. For more information, refer to the online NEWS. Users will be able to reach the VAX gateway by dialing 972-8700 and entering the command **CONNECT ANLVG.** Similarly, users with connections to terminal servers on the Laboratory-wide Ethernet may reach the VAX gateway by entering **CONNECT ANLVG.** Users of computers on the Laboratory-wide DECnet can enter **SET HOST ANLVG** to reach the VAX gateway.

The computing environments of the VAX 8700 (ANLCV1) and the VAX 8250 (ANLVG) have important common elements as well as important differences. The VAX cluster file system resources are shared by both. Therefore, when you login to either computer, you will see precisely the same directories and files. Moreover, standard VMS utilities (such as MAIL) will handle your received mail from a session on either node. The software environments, however, are quite different. Except for the standard tools and utilities that are normally a part of the VAX/VMS environment (such as the editors EDT and EVE and the communication utilities MAIL and PHONE), you will not find the program development tools and application programs on the VAX gateway. On the other hand, the VAX 8700 does have a large complement of program development tools and applications but does not provide direct Cray access. A batch queue that executes on node ANLVG will provide indirect access to the Cray from the VAX 8700.

The VAX gateway enables you to use the Cray in either batch or interactive mode. To use the interactive mode, enter the **CINT** command:

```
$ CINT
```

This creates a full screen display and issues the "CINT>" prompt. At the "CINT>" prompt, enter:

```
INTERACTIVE
```

The Cray UNICOS "login:" prompt will then appear. (Note that the "vi" editor does not behave properly in the current version of the VAX/VMS station, but may be fixed in a later release.) Alternatively, you may enter non-interactive mode by using the command:

```
$ CRAY
```

The non-interactive mode enables you to submit and control Cray batch jobs. In either mode, you may enter **HELP** to access the full online description of the VAX/VMS Station software features and commands. The draft *DEC VAX/VMS Station Reference Manual* (SV-0020) is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Users of the VAX gateway will need training in Unix shell programming, Cray UNICOS tools (such as the Fortran compilers), and VAX/VMS and DECnet features of the Cray system (namely, the **fetch** and **dispose** commands).

Table 1 displays the VAX Supercomputer Gateway processor rates. The rates for other resources are the same for all VAX cluster members.

TAPES AVAILABLE IN UNICOS

Computing Services is offering an interim tape implementation for the Cray X-MP/14 computer until Cray Research provides more robust tape facilities in a future release of UNICOS. Eleven IBM 3420 6250/1600-bpi tape drives and four IBM 3420 1600-bpi tape drives are accessible from the Cray. Although UNICOS does not currently provide the ability to write tapes directly from a Fortran program, users can use the tape facilities to move UNICOS files between tape and Cray DD-49 disks for use from their batch programs.

Table 1: VAX Supercomputer Gateway Processor Rates ($ Per Hour)

Interactive	
Prime Time	$50.00
Overnight	$20.00
Weekend	$13.33
Batch	
Prime Time	$25.00
Overnight	$10.00
Weekend	$ 5.00

Computing Services provides four UNICOS scripts (**anlrsv, anltps, anlrls,** and **anlmntp**) to assist with the interface to the current tape facilities in UNICOS. The following example reserves one 6250-bpi tape drive, mounts a new ANSI labeled library tape (which is identified to UNICOS by the pathname "mytape"), copies a file to tape from the $HOME directory, and then releases the tape drive; the final statement lists any tape error messages.

```
#user=
#QSUB -r TAPEJOB
set -xS
cd $SCRATCH
anlrsv 6250 1
anlmntp 6250 SCRATCH mytape al new name=cray.filel
cp $HOME/mydata mytape
anlrls mytape
cat tape.msg
```

Complete information on using IBM tapes from the Cray X-MP/14 is described in the latest draft of *Guide to UNICOS at ANL* (ANL/TM 460), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

AVAILABILITY OF GUIDE TO UNICOS AT ANL

The draft *Guide to UNICOS at ANL* (ANL/TM 460) describes how to use the central Cray X-MP/14 computer at Argonne National Laboratory. It covers the Cray X-MP/14 hardware configuration, the Cray UNICOS operating system, the Cray Network Queuing System (NQS) batch subsystem, and the MVS and VAX/VMS Front End Station services that provide access to the Cray.

Computing Services is preparing this document as the Cray UNICOS services are being developed at ANL. Therefore, information on some of the Cray X-MP's features and capabilities is not final. Check online NEWS frequently for updated UNICOS information. Until we publish a final version of this document, we will update this draft monthly, and draft copies will be available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

TELECOMMUNICATIONS NEWS

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,320 computers at over 810 sites. Since the last *Newsletter* article in April 1988, the following universities and organizations have joined BITnet:

Ball State University
California Polytechnic State University
Center for Educational Technology--Holon, Israel
Center of Applied Datology--Copenhagen
Central Michigan University
Higher Council for Scientific Investigations--Madrid
Connecticut College
CRN-DIHE--Strasbourg
DePaul University
Faculty of Economics and Commerce--Florence
National Research Center (CNR) IASI--Rome
National Research Center (CNR) ITSE--Rome
National Research Center (CNR)--Padua
Information Technology Institute--Singapore
Japan Atomic Energy Research Institute
Kyushu Institute of Technology
Max Plank Institute of Biology--Tuebingen
Nanyang Technical Institute--Singapore
National Center for Atmospheric Research
Rose-Hulman Institute--Terre Haute
Seoul National University
South Dakota State University
Space Telescope Science Institute--Baltimore
State University of New York College at Geneseo
State University of New York College at Plattsburgh
SURFnet--Utrecht
Tarleton State University
University of Aix-Marseille II
University of Arkansas--Little Rock
University of Joensuu
University of Oklahoma
University of Santiago
University of Talca--Chile
University of Southern Mississippi
Wright State University

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS)

```
HELP BITNET NODES
```

or enter (in Wylbur):

```
HELP BITNET
```

VAX/VMS NEWS

VAX NJE USERS NOW MAY SPECIFY ACCOUNT ALIAS WHEN SUBMITTING MVS BATCH JOBS

Users of distributed VAX computers in the Argonne file transfer network who submit MVS batch jobs may now override their default MVS account alias. Your default account alias is taken from your VAX Network Job Entry (NJE) table entry or your ACCOUNT.DAT file. Now you can define a logical name ACCOUNT_ALIAS that will be used whenever you submit an MVS batch job. To define or change a previously defined account alias, type:

```
DEFINE ACCOUNT_ALIAS character
```

where "character" is the one-character account alias assigned by Account Services to be used when submitting MVS batch jobs.

To restore your default account alias, type:

```
DEASSIGN ACCOUNT_ALIAS
```

All VAX NJE commands that submit MVS batch jobs will use the account alias specified in the ACCOUNT_ALIAS logical name. Two VAX NJE commands that submit MVS batch jobs are **CRJOB** and **HARDCOPY.** This capability does not apply to the **OSJOB** and **SEND** commands that submit job files prepared entirely by the user for execution.

COMPUTER-BASED INSTRUCTION COURSES FOR EVE AND DATATRIEVE AVAILABLE ON THE VAX 8700 COMPUTER

Computing Services has made available two new computer-based instruction courses on the central VAX 8700 computer. They are "Introduction to the Extensible VAX Editor" (EVECAI) and "Datatrieve for Users" (DTRCAI). EVE, the Extensible VAX Editor, is programmable with the VMS Text Processing Utility (TPU) commands. The EDT keypad of editing functions is also available, or you can create your own interface. EVE is a more modern alternative to EDT (another commonly used VMS editor); EVE offers online HELP, handles multiple files and buffers in a session, and provides windowing commands. With the windowing commands, a user can display and edit two files or two views within the same file. Users can also customize their editing environment by defining keypad functions. To invoke this online training course, enter (at the DCL prompt):

```
RUN EVECAI
```

Datatrieve is a fourth-generation language that permits you to create databases and store and retrieve data. To access the online training course, enter:

```
RUN DTRCAI
```

To run any of the computer-aided instruction (CAI) courses, you must use a Digital fullscreen or compatible terminal. The courses are menu-driven, and they each require several hours to complete. Other CAI courses available on the central VAX 8700 computer include "Introduction to VAX/VMS" (VMSCAI), "Introduction to the EDT Editor" (EDTCAI), and "Using the Language Sensitive Editor" (LSECAI). (See the CBT courseware list appended to this *Newsletter.)*

BITS & BYTES

RACF PASSWORDS NOW STORED IN ENCODED FORMAT

As part of the ANL computer protection program, all Resource Access Control Facility (RACF) passwords for CICS, MVS batch, TSO, and Wylbur are now stored in a new encoded format. Early versions of RACF used a decipherable encoding method for storing the look-up table for its user verification passwords. Recent versions of RACF have allowed us to store the passwords in an encrypted format by using the Data Encryption Standard (DES).

Switching from one encoding method to the other required some advanced preparation. Passwords are stored in the RACF database only when a password is established or changed; therefore, when we began the DES encrypting in March 1987, most of the passwords were stored in the old format and only those that were being changed were encrypted by using DES. Thus, RACF had to check both encryption methods before failing a password check. Because we had set RACF to allow users six months before requiring a password change, we could not completely convert from the old encryption check to the DES check until all those passwords remaining on the system had been replaced.

During March and April 1988, we checked the expiration date of all RACF passwords and reset all expired ones. We have now set RACF to check for and use only DES encrypted passwords.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD APRIL 3, 1988

The Chairperson, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:04 p.m. She thanked Cy Adams for all his contributions to the Computer Users Group during his six years as Chairman.

Report on Transformer Replacement and Consequences. Gary Schlesselman (Computing Services) outlined the difficulties experienced from

Friday, April 22, 1988, to Wednesday, April 27, 1988, as a result of the power shutdown in Building 221. The power was turned off to permit the replacement of old PCB transformers, and the plan was to resume computer operations on Sunday evening, April 24, 1988. In fact, the computers were not up until Monday morning, April 25, 1988, and operations were not back to normal until Wednesday, April 27, 1988. Difficulties on Monday were caused largely by communications equipment affected by the power outage. Difficulties with the Job Entry Subsystem (JES) on Tuesday and Wednesday occurred when BITnet traffic resumed, and approximately 3,000 jobs suddenly entered the system. Several users expressed dissatisfaction with the way Computing Services advertised the plans for the power outage and with the way the recorded status messages (on extension 2-5466) were handled during the first part of the week. In particular, BITnet nodes were notified, but not the Laboratory's VAX managers, and the recorded message claimed that "all systems were operational," even though users were experiencing long delays in getting jobs into execution.

Cray X-MP/14 Update. Joe Midlock (Computing Services) reported on the status of the Cray X-MP/14 computer. Computing Services installed the International Mathematical and Statistical Libraries (IMSL) on May 2, 1988. The VAX Supercomputer Gateway has been delivered but not yet installed. The Standby queue is now available on weekday nights (as well as on weekends), if it looks as if all other work will complete. Computing Services has installed vendor-supplied fixes for the "ERROR READING SLOT FILE 2" and Heap deallocation difficulties. As of May 3, 1988, the System Billing Units (SBU) value printed at the end of the job accounting report (JAR) shows the job cost in dollars; the value is approximate because charges incurred before the call to job accounting daemon (JAD) and after the call to jar cannot be included. Bert Toppel (Applied Physics) asked about several items of interest to his division. Joe noted that UNICOS 4.0 (to be released in June 1988) may be an appropriate system to make modifications for combining output that mixes files with and without carriage control and for providing more details about charging.

Pete Bertoncini (Computing Services) announced an "interim" tape implementation for the Cray X-MP/14 computer. At present, the tape subsystem interface is not very stable; Cray is still working on it. In particular, it will not be possible to write tapes directly from Fortran. This feature will be available in a future release of UNICOS. Pete described four shell scripts (anlrsv, anlmntp, anltps, and anlrls) that he has written to simplify tape handling. Their use will be described in the next revision of *Guide to UNICOS at ANL* (ANL/TM 460). Eleven 6250-bpi and four 1600-bpi tape drives are accessible from the Cray. He noted that there are special difficulties with writing more than one file on a single tape (especially NL and SL tapes).

PBX Update. Larry Amiot (Computing Services) discussed the Private Branch Exchange (PBX) and other data communication issues. The vendor's installation of new software on April 27, 1988, seems to have reduced LANmark difficulties with lost packets. The future addition of a diode may solve the difficulties with Asynchronous Data Interfaces (ADIs) locking up. He also reported noise trouble on one of the foreign-exchange lines to Chicago. He noted that a spectrum of data communications difficulties were encountered after the power shutdown in Building 221 and that they were still having trouble maintaining the Network Job Entry (NJE) connection to Chemical Technology. Cy Adams (Applied Physics) asked who users should go to if the Help Desk (2-4400) could not completely assist them. Larry replied that he thought the Help Desk should be able to refer difficulties to the proper people. Otherwise, call Larry Amiot (extension 2-5432), Al Winter (extension 2-2764, for voice telecommunication difficulties) or Bob McMahon (extension 2-7270, for data difficulties). Users who want help getting started with data communications can also talk to the User Services consultants (extension 2-5405).

Conversion of G1DATA Graphics Datasets. Fred Moszur (Computing Services) discussed a recently installed MVS batch procedure (G1CONV) for converting G1DATA datasets to CA/ISSCO metafiles. This feature will help in the overall plan for decommissioning obsolete plotters. However, this feature is not completely robust. It may not preserve all the features of a G1DATA metafile, and it will not handle some of the newer capabilities of Disspla (see "Conversion Available to CA/ISSCO Metafile from Obsolete G1DATA Format" in the May 1988 *Argonne Computing Newsletter*).

Computing Policy Committee Report. Cy Adams (Applied Physics) reported on the Committee meetings held on April 8, 1988, and April 22, 1988. The first item on the April 8th meeting agenda was a presentation by Larry Amiot (Computing Services) on the status of networking and telecommunications at the Laboratory. The Computing Policy Committee (CPC) is particularly interested in Argonne's participation in the development of the ESnet network by the Energy Research area of DOE; Larry will also be discussing this topic with the CPC Networking Subcommittee. At both meetings, Jim O'Kelley (Chief Financial Officer) gave updates on the computer charge-rate schedule for outside users of the Cray X-MP/14 computer. DOE has waived their rate factors for such charges for industry and university users, but other federal agency users must pay the charges. Dave Weber (Computing Services) presented a list of potential upgrades to the Cray X-MP/14 and asked for some guidance from the committee in setting priorities. Cray has recently made an offer (which will be open only for a short period of time) to replace the current 5 gigabytes of DD49 disks with 20 gigabytes of disks of a different model at a relatively low cost. The price is attractive, but it is not clear that the Laboratory has the money to spend. The CPC recommended that (if Argonne were to find the money) this disk replacement be given the top priority, and the solid-state disk (which had been given the top priority at a meeting held before Cray's disk offer) be moved well down the list. Dave also asked for and received approval for a change in the policy on the standby category of computing on the Cray X-MP/14; the standby category will now be available on weeknights as well as weekends. There is a strong feeling among some members of the CPC that the spectrum of charge multipliers (currently 0.1 to 3.0) should be narrowed; this issue will be discussed at later meetings, as Computing Services makes plans for FY1989. Finally, Fred Moszur (Computing Services) gave a presentation on "Scientific Graphics."

The meeting adjourned at 4:15 p.m.

Cy Adams, Acting CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD WEDNESDAY, MAY 11, 1988

Bob Kampwirth (Materials Science) opened the meeting at 11:00 a.m.

Ray Carlson (Computing Services) reported that any files he hasn't put on library disks are available on the Apple Macintosh IIs in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142). Included among these files are programs to handle virus-related problems: Vaccine, AGAR, Interferon, KillScores, VirusDetective and Virus Rx (from Apple). Another virus locator available is the program Ferret, but it may be too buggy to use. Vaccine prevents infection, while the others locate or kill known viruses. Ray also has a PRAM patch that will help prevent Apple Macintosh II hard disks from disappearing from the Finder. Rodney East (Materials Science) has a nine-page list of over 200 HyperCard programs that will be available in the Apple Macintosh library later this week. Lee Wagar (Graphic Arts) has mailed a memo on Apple Macintosh viruses to everyone on the Macintosh Users Group mailing list.

John Mattson (Materials Science), president of the Macintosh Users Group Programmers Special Interest Group (SIG), has placed a "programmers SIG" disk in the Apple Macintosh library containing "x" commands, "x" functions, headers, and "includes" to assist in programming.

A user directed a complaint to Bob Boyle (the Apple Computer representative giving the demonstration) concerning the Apple LaserWriter II's use of dip switches rather than software to control machine emulation. This situation prevents printing from being transparent to users and requires that the LaserWriter II be physically switched for different printer drivers. Bob was asked to find out if there are any plans to correct this situation.

Bob started his demonstration with "Son of Navigator," a video presenting some future directions for Apple Computer. (The tape can be borrowed from Ray Carlson.) The demonstration was a digital compact disk read-only memory (CD ROM) drive released May 1, 1988 (the price is approximately $900 from the University of Chicago, although there is a five-week backlog of orders) The disks provide more than 550 megabytes of data storage and are identical to audio disks. Currently, the drive accommodates only the Apple Macintosh's HFS file format, but the next revision of the Apple Macintosh operating system (6.0) will recognize the industry-standard High Sierra file system. The drive's access time is approximately the same as that of an 800K floppy disk, and the drive can operate with any Apple Macintosh equipped with a Small Computer Systems Interface (SCSI) port. One way of using the drive is for massive, encyclopedia-like applications requiring text, graphics, and sound. There is a special version of HyperCard for these reference applications (it doesn't try to write back to disk). The drive can also play regular audio compact disks, with the

Apple Macintosh as the CD controller and stereo output jacks to go directly to an audio amplifier. Bob had no current information on the cost of disks. Apple Computer ships the CD ROM Player without any CD ROM software. Bob stated that he wasn't aware of any software currently available, but he expected that it would be available by the time customers actually get the player. The direction of research at Apple Computer is toward a read-write CD, rather than a write-once-read-many (WORM) CD. They are also looking into interfacing with the analog LaserDisk systems, with animation as one possible end product.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing Services), Lee Wagar (Graphic Arts), Jim Lewellen (Computing Services), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:15 p.m.

Lee Wagar, Macintosh Users Group Corresponding Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD MAY 13, 1988

The Chairperson, Gail Pieper (Mathematics and Computer Science) opened the meeting at 12:15 p.m.

Lee Wagar (Graphic Arts) began the meeting with an update on the Texet composition system. Ethernet connections have now been made throughout the Laboratory. Training for inputting mathematical equations will start on May 23, 1988. Rich Nixon (Graphic Arts) mentioned that they will wait until the Texet system is fully operational before beginning the 30-day acceptance test.

Dave Hamrin (Technical Information Services) brought the 1987 update of the American National Standards Institute publication: *Scientific and Technical Reports--Organization, Preparation, and Production* (Report Z3918-1987) with him. It is available from the American National Standards Institute. Dave thinks it is much better than previous versions and that it might be a good source for the committee that is working on site-wide publication standards. Some sample reports had previously been gathered for that committee to study.

Joe Paulini (Graphic Arts) mentioned that he was misquoted in the May 1988 *Argonne Computing Newsletter*. The Ilford system does not make color negatives; it can only make positives. Also, it does not have the ability to reduce slides, only to enlarge them.

Gail Pieper then asked if there was a relatively inexpensive way to get color copies onsite. Rich Nixon answered that Graphic Arts got rid of their color Xerox machine, because they found that the quality of the copies was poor, the machine was unreliable, and not enough people used the machine to justify leasing it. The Ilford has replaced it. Making one color copy on the Ilford costs approximately $4.50, with the price for further copies being somewhat less (depending on the amount). Rich does not anticipate that a less expensive process will be available at the Laboratory in the near future; Xerox does not seem to have the technology now. The difficulty seems to result from the fact that the color Xerox machine uses a dry toner rather than a chemical product, which the Ilford uses. Gail was advised to look elsewhere for less expensive color copies and to expect muddy colors and poorer quality than the Ilford would provide.

Gail then brought to the group's attention that National Technical Information Services (NTIS) periodically sends her a listing of the reports it has available on microfiche. She noticed that a large percentage of the reports published at Argonne were listed as having "portions illegible," and she wondered if anyone knew why. Dave Hamrin answered that he thought it was because the people who code the documents classify them as having "portions illegible" even if only one number is illegible. He also thought that any number, letter, or symbol smaller than 1/16th of an inch is put into this "illegible" category. This situation occurs frequently in illustrations and sometimes even within the text (in subscripts, superscripts, and equations). Dave said he thought that the illegibility was widespread and not unique to Argonne documents and that it was not a result of lax editing, graphics, and printing standards. He said he would check into it further.

Gail also inquired about the cost of folding and stapling small (16-page) documents. She wondered why outside quotes were often less expensive. Although he felt the question could be answered more properly by Bill Jepsen, Rich Nixon stated that the folding and stapling was often done by hand, and an hourly rate was charged.

Another part of the difficulty is that the folding machine in Graphic Arts is fairly old and can malfunction (depending on stock, humidity, and other variables). Also, Graphic Arts does not have a pool do this type of work. Rich said that after unit pricing for printing and binding is established, they may be able to determine more realistic costs of various services and adjust charges when necessary.

The next Graphic Arts Users Group Meeting will be held on Thursday, June 9, 1988 (noon in Building 221, Room C-201).

Marita Moniger, Graphic Arts Users Group Acting Secretary

WORKLOAD STATISTICS (MARCH 31 THROUGH APRIL 28, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,352	1,352	594
Wylbur	1,608	1,624	517
MVS TSO	44	54	20
CICS	1,608	1,624	68
MVS Batch	1,995	2,015	734
VAX/VMS	290	293	140
Cray	96	156	75
All Systems	1,995	2,015	1,001

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	13,683	2,178	1,088	16,949	31,895.9	98.93
Wylbur	12,319	511	464	13,294	9,214.4	10.73
MVS TSO	135	25	5	165	170.6	0.09
CICS	32	0	0	32	0.0	0.82
VAX/VMS	5,959	490	208	6,657	5,724.0	41.53
Cray	466	23	226	715	333.2	5.83
IBM BATCH						
Class U	11,506	1,969	886	14,361	n.a.	42.88
Class W	17,088	1,453	663	19,204	n.a.	153.26
Class X	2	1,393	41	1,436	n.a.	74.66
Class Y	0	45	334	379	n.a.	86.55
Class Z	0	3	149	152	n.a.	17.65
Nonmain	13,406	1,387	507	15,300	n.a.	0.00
Total	42,002	6,250	2,580	50,832	n.a.	375.00
CRAY BATCH						
Prime	3,443	226	139	3,808	n.a.	49.49
Night	1	249	5	255	n.a.	43.50
Weekend	3	0	96	99	n.a.	41.03
Standby	0	6	95	101	n.a.	44.25
Total	3,447	481	335	4,263	n.a.	178.27
VMS BATCH						
Prime	1,032	208	120	1,360	n.a.	129.68
Night	9	71	5	85	n.a.	17.46
Weekend	2	0	7	9	n.a.	0.63
Standby	0	0	5	5	n.a.	2.19
Total	1,043	279	137	1,459	n.a.	149.96

INPUT/OUTPUT

Lines Printed	
Local	56,125,101
Remote	48,081,019
Fiche	28,017,217
Cards Punched-Local Only	8,344
Tape Mounts	8,291
Microfiche Developed	3,827
Microfiche Frames Developed	627,608

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	3	14
Versatec Jobs	111	1,110
Matrix 35mm Color	240	1,354
Matrix-8 x 10	6	10
Matrix-negative	1	2
FR80 Film Plots		
35mm Black/White/Unsprocketed	34	323
35mm Black/White/Sprocketed	4	124
35mm Color	2	14
16mm Black/White/Sprocketed	8	2,823
16mm Color	1	2,956
105mm Black/White/Unsprocketed	0	0

DATA MANAGEMENT

Tapes Stored	22,022
New Tapes Saved	746
Tapes Released	893
Datasets Exported to Tape	283
Datasets Imported from Tape	567

* n.a. = not applicable

MVS BATCH SCHEDULING PERFORMANCE FROM MARCH 31 AT 7:00 A.M. TO APRIL 28, 1988, AT 7:00 A.M.

	STARTED IN PRIME SHIFT	*STARTED IN OVERNIGHT SHIFT*	*STARTED IN WEEKEND SHIFT*	*TOTAL OF ALL SHIFTS*
CLASS U EXPEDITED BATCH				
Number Started	11,506	1,969	886	14,361
Number Started in 12 Minutes	10,983	1,363	749	13,095
Percent Started in 12 Minutes	95.5	69.2	84.5	91.2
25th Percentile Start Delay (Minutes)	0.1	0.1	0.1	0.1
50th Percentile Start Delay (Minutes)	0.1	0.6	0.1	0.1
75th Percentile Start Delay (Minutes)	0.2	20.3	1.3	0.5
90th Percentile Start Delay (Minutes)	2.7	48.1	24.9	8.8
99th Percentile Start Delay (Minutes)	102.4	228.9	230.9	137.2
CLASS W REGULAR BATCH				
Number Started	17,088	1,453	663	19,204
Number Started in 2 Hours	16,835	1,322	658	18,815
Percent Started in 2 Hours	98.5	91.0	99.2	98.0
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	0.1	0.0	0.0
90th Percentile Start Delay (Hours)	0.3	1.8	0.0	0.3
99th Percentile Start Delay (Hours)	2.4	12.9	1.4	3.0
CLASS X DEFERRED OVERNIGHT BATCH				
Number Started	2	1,393	41	1,436
Number Started in 15 Hours	2	1,393	41	1,436
Percent Started in 15 Hours	100.0	100.0	100.0	100.0
25th Percentile Start Delay (Hours)	5.0	2.3	0.0	2.1
50th Percentile Start Delay (Hours)	5.0	3.8	0.0	3.6
75th Percentile Start Delay (Hours)	5.1	6.8	0.0	6.6
90th Percentile Start Delay (Hours)	5.1	10.2	0.2	10.1
99th Percentile Start Delay (Hours)	5.1	12.9	0.7	12.8
CLASS Y DEFERRED WEEKEND BATCH				
Number Started	0	45	334	379
25th Percentile Start Delay (Hours)	0.0	77.6	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	79.5	0.6	6.8
75th Percentile Start Delay (Hours)	0.0	82.7	16.3	19.0
90th Percentile Start Delay (Hours)	0.0	127.9	20.7	76.4
99th Percentile Start Delay (Hours)	0.0	136.4	51.5	129.0
CLASS Z LIMITED DEFERRED WEEKEND BATCH				
Number Started	0	3	149	152
25th Percentile Start Delay (Hours)	0.0	73.8	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	74.2	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	75.4	20.3	25.0
90th Percentile Start Delay (Hours)	0.0	75.4	75.6	75.6
99th Percentile Start Delay (Hours)	0.0	75.4	94.6	94.6
TOTAL OF ALL CLASSES				
Number Started	28,596	4,863	2,073	35,532

AVAILABILITY STATISTICS, BY MACHINE (MARCH 31 THROUGH APRIL 28, 1988)

	Monthly	*Scheduled*			*Unscheduled*		
	Totals	*Hdware*	*Sftware*	*Other*	*Hdware*	*Sftware*	*Other*
			YELLOW IBM 3033				
All Shifts							
Interruptions	21	3	10	2	2	3	1
Hrs Unavailable	74.90	4.81	8.31	58.65	0.83	1.93	0.35
MTF/Unscheduled	103.51				310.55	207.03	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	17	2	10		1	3	1
Hrs Unavailable	14.23	3.28	8.31		0.35	1.93	0.35
MTF/Unscheduled	47.55				237.76	79.25	
			RED IBM 3033				
All Shifts							
Interruptions	14	3	5	2	2	1	1
Hrs Unavailable	67.78	4.63	1.56	59.96	0.81	0.21	0.58
MTF/Unscheduled	157.05				314.10	628.21	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	12	3	5		2	1	1
Hrs Unavailable	7.81	4.63	1.56		0.81	0.21	0.58
MTF/Unscheduled	61.04				122.09	244.18	

AVAILABILITY STATISTICS, BY SERVICE (MARCH 31 THROUGH APRIL 28, 1988)

	Monthly	*Scheduled*			*Unscheduled*		
	Totals	*Hdware*	*Sftware*	*Other*	*Hdware*	*Sftware*	*Other*
			CMS				
All Shifts							
Interruptions	15	3	5	2	2	1	2
Hrs Unavailable	68.13	4.63	1.56	59.96	0.81	0.21	0.93
MTF/Unscheduled	125.57				313.93	627.86	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	3	5		2	1	2
Hrs Unavailable	8.16	4.63	1.56		0.81	0.21	0.93
MTF/Unscheduled	48.76				121.91	243.83	
			WYLBUR				
All Shifts							
Interruptions	45	4	11	2	8	20	
Hrs Unavailable	87.71	6.48	8.86	59.05	5.43	7.88	
MTF/Unscheduled	21.72				76.03	30.41	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	41	3	11		7	20	
Hrs Unavailable	26.48	4.85	8.86		4.88	7.88	
MTF/Unscheduled	8.35				32.21	11.27	
			MVS TSO				
All Shifts							
Interruptions	25	5	9	2	6	3	
Hrs Unavailable	84.01	8.83	8.78	59.05	4.75	2.60	
MTF/Unscheduled	67.99				101.99	203.99	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	21	4	9		5	3	
Hrs Unavailable	22.78	7.20	8.78		4.20	2.60	
MTF/Unscheduled	28.65				45.84	76.40	
			JES3				
All Shifts							
Interruptions	33	3	10	2	2	16	
Hrs Unavailable	78.41	4.81	8.35	58.65	0.83	5.76	
MTF/Unscheduled	34.31				308.79	38.59	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	29	2	10		1	16	
Hrs Unavailable	17.75	3.28	8.35		0.35	5.76	
MTF/Unscheduled	13.77				234.25	14.64	
			CICS				
All Shifts							
Interruptions	8				1	7	
Hrs Unavailable	4.28				0.58	3.70	
MTF/Unscheduled	86.46				691.71	98.81	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	8				1	7	
Hrs Unavailable	4.28				0.58	3.70	
MTF/Unscheduled	30.96				247.71	35.38	
			VAX/VMS				
All Shifts							
Interruptions	14		3	1	10		
Hrs Unavailable	92.43		1.65	55.75	35.03		
MTF/Unscheduled	60.35				60.35		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	8		2		6		
Hrs Unavailable	23.65		1.48		22.16		
MTF/Unscheduled	38.05				38.05		
			CRAY				
All Shifts							
Interruptions	29	8	15	2	1	3	
Hrs Unavailable	102.31	16.13	16.30	68.00	0.30	1.58	
MTF/Unscheduled	148.42				593.68	197.89	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	19	1	13	1	1	3	
Hrs Unavailable	83.68	1.25	13.05	67.50	0.30	1.58	
MTF/Unscheduled	42.07				168.31	56.10	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (MARCH 31 THROUGH APRIL 28, 1988)

COST	CENTER	BATCH	WYLBUR	CMS	MVS TSO	VAX/VMS	CRAY	DISK	OTHER	TOTAL
102	EBR-AW	1,035	870	256			764	1,599	506	5,029
104	EBR-IL	2,211	547	1,556				2,437	2,448	9,200
105	MSD	1,183	261	356		1,024	7,719	2,846	2,325	15,714
107	CMT	2,024	373	1,008		113		1,378	14,456	19,351
109	PHY	256	350	1,712		1,245	1,056	2,541	1,769	8,930
110	BIM	822	250	1,490	5	1,158	59	3,255	2,718	9,757
112	RAS	8,732	4,524	765		532	3,897	8,209	5,130	31,790
113	REE-SRF	43	3					9	17	73
114	MCT	3,569	1,112	1,960		266	805	4,523	3,637	15,871
115	ENC-IL	366	163	1,021		72		1,474	692	3,788
116	AP-IL	23,749	7,917	3,249	77	1,642	14,858	18,653	6,920	77,064
117	AP-AW	5,889	957	4			2,514	5,637	169	15,170
118	REE-AW	504	222	488		1		1,948	62	3,224
119	AL-AW								24	24
120	CHM	912	90	211		1,886	13	1,628	3,822	8,562
130	APS	633	23	294		5,804		1,806	303	8,861
136	PNS	89	5	32		6		130	477	740
137	HEP	510	12	348	39	186	346	739	2,479	4,658
139	DEP	228	133	880				1,477	1,300	4,018
143	SSD-EL	122	5	113		10		109	276	635
145	MCS	71	11	182	1		52	502	5,920	6,741
148	HD	369	13	219				835	141	1,576
149	ER	196	79	1,488		97	149	2,021	1,353	5,382
150	SPM	100		49				117	9	275
161	TIS	1,489	57	15		3		665	284	2,513
171	RPD	137	32	0				70	75	315
174	EEP	243	30	10				68	33	383
178	FP	111	6	2				375	187	681
190	EES	12,627	3,217	870	13	10,558	0	15,402	13,494	56,181
197	IEP	424	53	348				140	87	1,052
201	OTD	55	0	218				374	287	935
202	OPS			23				42	104	168
210	SSD-CS	74	7	155				55	50	341
211	ENG-DE							124	24	148
216	SSD	222	16	118				172	73	601
222	SSD-LF								24	24
232	SEC	13		1				546	37	597
234	SSD-HP	16	2	412				198	505	1,133
235	SSD-OHS	1,029	77	108				525	94	1,832
236	OHS-FD								24	24
245	SSD-CSD	4,565	374	1,901				6,215	2,722	15,778
246	TIS-NESC	19	0	19				56	658	753
247	SSD-COM	915	90	510				1,220	535	3,270
260	SSD-CA	114		55				177	1,402	1,749
269	CMT-AC	82	8	36				95	71	291
271	OTD-RPA	388	29	135				172	259	984
272	APS			6				18	1	24
273	OTD-PR	29	1	74				48	31	183
274	OTD-EET	83	1	64				125	54	327
275	OPA	92	1	381				353	58	886
276	OPA-MP	25	2	7				72	2	107
315	SSD-MS	165	6	2,482				1,424	505	4,582
316	PFS-VM	37						45	58	140
317	PFS-DR	64	1	18				18	24	125
319	SSD-TVL			131				12	24	167
322	SSD-PRO	41						59	33	133
333	QAD-PQ	29	1					148	54	233
336	QAD-IN	13								13
400	CR-CTR	8,528	751	962				8,285	1,713	20,239
401	CR-ACT	7,512	377	699				8,817	243	17,649
402	OCF-DE								100	100
403	CR-BUD								24	24
410	HR	2,929	85	10,965				4,336	1,044	19,359
412	AAP			17				94	109	220
501	PFS-BM	16	1					42	62	121
502	PFS-IN								24	24
503	PFS-CR								24	24
504	PFS-CU								24	24
505	PFS-WMO			35				59	49	143
506	PFS-PMO	483	5	110				203	64	864
510	PFS-US								24	24
512	PFS-FPE	344	87	466				656	112	1,667
530	AW-SMO	97	4	19				48	25	192
531	AW-HR		9	120				30	24	183
532	AW-SPM	333	8	506	0			495	138	1,480
533	AW-ACT								24	24
534	AW-PUR							18	24	42
535	AW-SEC							30	24	54
536	AW-SS	54	12	19				252	25	362
537	AW-IS								24	24
538	AW-MHD	8	14	22				55	26	125
550	AW-CAS	209	22	93				110	24	458
551	AW-RM							12	24	36
554	AW-MS		16	27				30	24	96
556	AW-SE	24	11	104				114	29	282
557	AW-PS	2	2	114				66	24	208
558	AW-PS							6		6
559	AW-FS								24	24
561	QAD-AW							13	25	38
563	AW-TRP								24	24
750	OUTSIDE	575	109				46	659	972	2,361
751	FNAL	2,648		130				1,316	487	4,581
752	NAVY	3,195	1,082	1,292				4,596	3,276	13,441
753	METC			4				35	600	639
754	DOE-CH		0					6	114	120
757	COLLABOR	11	12	375				409	506	1,314
		--------	--------	--------	--------	--------	--------	--------	--------	--------
TOTAL	CHARGE	$103,681	$24,538	$41,859	$136	$24,603	$32,279	$123,680	$88,928	$439,703
245	SSD-CSD	10,057	2,254	81,858	438	3,522	15,857	24,445	35,296	173,728
800	CSD-OPS	21,839	640	26,626	91	3,489	329	3,140	5,751	61,906
		--------	--------	--------	--------	--------	--------	--------	--------	--------
TOTAL	NO CHARGE	$31,896	$2,894	$108,484	$529	$7,012	$16,186	$27,585	$41,047	$235,634

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 312)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	6-7463	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CMS, Wylbur, and TSO Interactive Computing Services			
300 Bits Per Second	2-7603	6-7005	972-7603
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	6-7005	972-7612
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	6-7005	972-2212
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
X.25 Terminal Multiplexor	2-2525	n.a.	n.a.
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	6-8700	972-8700
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
ARPAnet Data Communications Network			
1,200 to 2,400 Bits Per Second Full-Duplex	2-7490	n.a.	972-7490

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**	**ARPAnet**
Monday to Thursday	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

* Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing Services will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing Services will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

SUBJECT INDEX FOR CALENDAR YEAR 1988 (6/88)

These entries refer to *Newsletters* published in 1988. All previous *Newsletters* are indexed in the December 1987 issue of the *Newsletter* or use the LOOKUP command in CMS, Wylbur, and distributed VAX computers.

Account aliases
    VAX NJE users may specify for MVS batch jobs ... 2518
Advanced Computing Research Facility (ACRF) ... 2513
    parallel computing class ... 2467, 2478, 2487, 2499, 2514
    programming techniques seminar ... 2514
    update ... 2478
Advanced Computing Seminars ... 2489, 2500
Answer/DB
    computer-based training course available in CMS ... 2479
Apple LaserWriter
    upgrade kit available ... 2487
Application System
    Project Management Office evaluation ... 2497
ARPAnet
    BITnet gateway changes ... 2458

Biomedical Computer Programs (BMDP)
    BMDP-87 ... 2480
BITnet
    network ... 2467, 2493, 2518
BLOWUP
    available on color plotter ... 2489

CAI (Computer-aided instruction)
    available for Datatrieve ... 2519
    available for EVE ... 2519
CalComp
    last pen plotter decommissioned ... 2503
CalComp 5835XP color plotter
    BLOWUP feature available ... 2489
    STACK3 feature available ... 2489
CAL580
    old CalComp plotter decommissioned ... 2503
CAL780
    old CalComp plotter decommissioned ... 2503
CAL936
    old CalComp plotter decommissioned ... 2503
CBT ... (see Computer-based training)
CICS
    new screen planned ... 2487
CMS
    Disspla 10.5 available for testing ... 2502
    PL/I Optimizing Compiler available for testing ... &syspag
    Tellagraf Version 6.1 available for testing ... 2502
    upgrade to Release 5 ... 2480
    VM/SP Release 5 available for testing ... 2515
    Waterloo C (Version 3.0) available for testing ... 2515
CMS execs
    TESTCMS ... 2480
Compilers
    Cray CFT77 Fortran compiler now available ... 2501
Computer Output and Document Distribution Area (Building 221)
    renovation of ... 2482
Computer Users Group
    current officers and subcommittees ... 2506
Computer-based training (CBT)
    courses ... 2479
    Language Sensitive Editor computer-based training available ... 2491
Computing Center
    1988 holiday schedule ... 2488
Computing Center service schedule
    Fourth of July 1988 holiday ... 2513
    Memorial Day 1988 holiday ... 2499
Computing classes scheduled for April 1988 ... 2488
Computing classes scheduled for June and July 1988 ... 2514
Computing classes scheduled for June 1988 ... 2499
Connection Machine
    acquired by Mathematics and Computer Science Division ... 2513
Cray UNICOS
    standby batch service increased to weeknights ... 2501
Cray X-MP/14 high performance computer
    Disspla Version 10.0 installed in UNICOS ... 2501
    operating schedules for UNICOS ... 2465
    rates approved ... 2466
    UNICOS 3.0 available ... 2465
    update ... 2453, 2465
CRWTH ... 2479
Cuechart
    Version 2.1 ... 2502

- Datatrieve computer-based instruction available ... 2519
- Disspla
  - Version 10.0 installed in Cray UNICOS ... 2501
- Disspla 10.5
  - available for user testing in CMS ... 2502
- Distributed Array Processor (DAP) ... 2478
- Documentation
  - recently updated and published ... 2458, 2480, 2492, 2505
  - UNICOS document available ... 2518

- Electronic publishing
  - Texet ... 2478
- EVE computer-based instruction available ... 2519
- Expert systems
  - course in Prolog and basic tools ... 2453
- Ezpert
  - Version 5.5 installed ... 2497

- FETCH command failures ... 2498
- Focus
  - computer-based training courses available in CMS ... 2479

- Graphics
  - BLOWUP and STACK3 features available on color plotter ... 2489
  - CalComp pen plotter (last one) decommissioned ... 2503
  - Disspla 10.0 installed in Cray UNICOS ... 2501
  - Disspla 10.5 available for testing ... 2502
  - G1DATA conversion to CA/ISSCO metafiles available ... 2503
  - metafile conversion to CA/ISSCO available ... 2503
  - negatives available from Matrix camera ... 2489
  - SuperImage software for personal computers ... 2456
  - Tellagraf 6.1 available for testing ... 2502
  - Versatec decommissioning planned ... 2503
  - viewgraphs available from Matrix camera ... 2489
- G1DATA
  - metafile conversion to CA/ISSCO available ... 2503

- Hydra Protocol Converter
  - available offsite at 2400 baud ... 2490

- IBM Personal Computer
  - SuperImage graphics software ... 2456
- IBM 3033
  - replacement planning initiated ... 2453
  - task force membership ... 2453
- ICUSER
  - computer-based training course available in CMS ... 2479
- ISPF
  - computer-based training course available in CMS ... 2479
- Itel disk equipment
  - removal of ... 2456

- Language Sensitive Editor
  - available on the VAX 8700 computer ... 2491
  - computer-based training available ... 2491
- Local area network (LAN) Ethernet
  - reliability improved ... 2490

- Materials Catalog (MCAT) ... 2500
- Matrix camera
  - viewgraphs and negatives available ... 2489
- MCAT (Materials Catalog ... 2500
- Multiprocessing ... 2478, 2513
- MVS
  - VAX NJE users may specify account alias for batch jobs ... 2518

- NAG library
  - G floating-point NAG library available on VAX 8700 ... 2504
- Negative film
  - available from Matrix camera ... 2489

- Personal computers
  - OS/2 considerations ... 2457
  - SuperImage graphics software ... 2456
- Phased disk replacement
  - elimination of TSPERM ... 2456
  - elimination of TSP60n disks ... 2456
- PL/I
  - Optimizing Compiler available for testing in CMS ... 2500
- Project Management System (PMS IV) ... 2497
- Protection
  - computer protection ... 2454

- RACF
  - installation procedure ... 2454
  - passwords stored in encoded format ... 2519

- Service rates
  - Cray X-MP/14 rates approved ... 2466
  - surcharge to non-ANL users increased ... 2487, &syspag
- Service Schedule
  - Computing Center ... 2465
- Services (computer maintenance)
  - available from Electronics ... 2498
- SPCAL580
  - old CalComp plotter decommissioned ... 2503

SPCAL780
  old CalComp plotter decommissioned ... 2503
SPCAL936
  old CalComp plotter decommissioned ... 2503
SPFVERS11
  Versatec decommissioning planned ... 2503
SQL
  computer-based training courses available in CMS ... 2479
STORECAT ... 2500
Stores Catalog ... 2500
SuperImage graphics software ... 2456, 2490

Tape
  available in UNICOS ... 2517
  releasing unneeded ... 2513
Tellagraf
  Version 6.1 available for testing in CMS ... 2502
TESTCMS execs ... 2480
Texet electronic publishing system ... 2478
TSO
  computer-based training course available in CMS ... 2479
TSPERM
  datasets moved to PERM ... 2456
  no longer defined ... 2456
  removed through phased disk replacement ... 2456

UNICOS
  classes ... 2465
  Cray CFT77 Fortran compiler now available ... 2501
  documentation available ... 2518
  operating schedules on Cray ... 2465
  tapes available ... 2517
  update ... 2477
UNICOS 3.0
  available on Cray X-MP/14 ... 2465
UNICOS 3.0.11
  in production ... 2500
Unix
  available on VAX 8700 ... 2470
USERDETAIL command
  available on VAX 8700 ... 2473

VAX Supercomputer Gateway testing ... 2516
VAX 8700 computer
  G Floating-point NAG library available ... 2504
  Language Sensitive Editor available ... 2491
VAX 8700 computer system
  computer-based instruction
    available for EVE and Datatrieve ... 2519
  group manager role created ... 2505
  software upgrades ... 2473
  Unix available on ... 2470
  USERDETAIL command available on ... 2473
VAX/VMS
  command line editing ... 2468, 2469
  command line recall ... 2469
  print capability extended ... 2491
  software distribution kit sharing procedure extended ... 2490
  users may submit account alias for MVS batch jobs ... 2518
Versatec
  planned decommissioning ... 2503
VERS11
  Versatec decommissioning planned ... 2503
Viewgraphs
  available from Matrix camera ... 2489
Virtual Machine System Product Release 5 (VM/SP5)
  available for testing ... 2515
VM/SP5 ... (see Virtual Machine System Product Release 5)

Waterloo C
  version 3.0 available for testing in CMS ... 2515
Wylbur
  fetch failures ... 2498

X.25
  expanded access ... 2490

Argonne National Laboratory
Computing Services
June and July 1988

COMPUTING CENTER CLASSES

Computing Services is offering one demonstration and seven computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the Computing Services Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. Computing Services will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals: To develop an overview of available computing facilities and services provided by Computing Services.

Length of Class: One 3-hour session

Date and Time: June 7, 1988 (Tuesday), 9:00 a.m. to noon

Location: Building 221, Room A-216

Suggested Reading:
Guide to Computing at ANL (ANL/TM 336)
Recommended Documentation for Computer Users at ANL (ANL/TM 379)
Guide to Telecommunications at ANL (ANL/TM 422)

Instructor: Rich Slade

USING COMPUTER-BASED TRAINING

Goals: To provide a demonstration of how to use computer-based training (CBT) courses in CMS to allow prospective students to learn more about available CBT courses.

Length of Demonstration: One hour

Date and Time: June 9, 1988 (Thursday), 1:30 p.m. to 2:30 p.m.

Location: Building 221, Room A-261

Instructor: Dave Leibfritz

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts of VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: June 14, 1988 (Tuesday), 9:00 a.m. to noon

Location: Building 221, Room A-216

Instructor: Diane Lark

INTRODUCTION TO WYLBUR FOR TEXT EDITING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for MVS batch processing. To learn about the MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for batch execution.

Length of Class: One 3-hour session

Date and Time: June 21, 1988 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

NOTE: Depending on the class attendance and the needs of the attendees, Computing Services may offer one or more of the additional Wylbur and MVS batch computing classes later in June or July 1988.

INTRODUCTION TO UNICOS AND SHELL PROGRAMMING

Goals: To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands.

Length of Class: Two 3-hour sessions

Date and Times: June 22, 1988 (Wednesday) 9:00 a.m. to noon and 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Pete Bertoncini

USING THE CRAY X-MP FROM THE MVS STATION

Goals:	To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and manage Cray files from the MVS front-end station so that you can submit Cray jobs from CMS, MVS, and VAX/VMS systems.
Prerequisite:	"Introduction to UNICOS and Shell Programming" class or equivalent experience with Unix.
Length of Class:	Two 3-hour sessions
Dates and Times:	June 28, 1988 (Tuesday), 1:30 p.m. to 4:30 p.m. June 29, 1988 (Wednesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Suggested Reading:	*Guide to UNICOS at ANL* (ANL/TM 460)
Instructor:	Al Hinds

USING THE CRAY X-MP FROM THE VAX SUPERCOMPUTER GATEWAY

Goals:	To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and manage Cray files from the VAX station.
Prerequisite:	"Introduction to UNICOS and Shell Programming" class or equivalent experience with Unix.
Length of Class:	Two 3-hour sessions
Dates and Times:	June 30, 1988 (Thursday), 9:00 a.m. to noon July 1, 1988 (Friday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	*DEC VAX/VMS Station Reference Manual* (SV-0020) *Guide to UNICOS at ANL* (ANL/TM 460)
Instructor:	An instructor from Cray Research, Inc. will be announced.

NOTE: At the time of publication, the dates and times for this class were not confirmed and may be changed.

Course Name	**Course Title**
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
SORTMRG	Using SORT/MERGE Utilities
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Course	
TSOUSE	Using TSO
SPFUSE	Using ISPF
Miscellaneous Courses *(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)*	
ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

☆ U.S. GOVERNMENT PRINTING OFFICE 1988 — 542-143/80000

.8615:

OSITCRY.
JAN 12 1989
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

ARGONNE COMPUTING NEWSLETTER

Published Monthly by Argonne National Laboratory Computing Services

VOLUME 19 NUMBER 7 JULY 1988

COMPUTING COMMENTS

Summer Institute in Parallel Computing 2525
Mathematics and Computer Science SIMD Programming Techniques Seminar 2525
Mathematics and Computer Science Parallel Computing Class 2525
Computing Classes Scheduled for July 1988 2525
New CICS Application Menu Screen 2526

CMS NEWS

Speakeasy IV Version Epsilon Available for Testing in CMS 2526

CRAY NEWS

TCP/IP Access for Cray UNICOS Testing 2527
VAX Supercomputer Gateway to the Cray X-MP/14 Available for General Use 2528
Charge for WAIT Time Suspended 2528
Plans To Increase Cray UNICOS Disk Space 2528
Computing Services Tests IBM Disks Attached to Cray X-MP 2529

GRAPHICS NEWS

Revised Film Processing Schedule Includes Viewgraphs on Matrix Camera 2529
Disspla 10.5 Now Available for Testing in MVS 2529

MVS NEWS

Maximum MVS Region Size Reduced 2531

TELECOMMUNICATIONS NEWS

PBX Acceptance 2531
Argonne Users Should Use MKO with Asynchronous Data Interfaces 2531
Upgraded Hydra Protocol Converter Available for Testing 2532
Electronic Mail Discussion Groups Available on BITnet 2532

VAX/VMS NEWS

Central VAX Cluster Remote Printer Service Available 2534
MACSYMA Available on the VAX 8700 2534
Desk Calculator Available on the VAX 8700 2535
LaTeX and TeX Now Available on the Central VAX 8700 Computer 2535

PERSONAL COMPUTING

Recommended Ethernet Boards for IBM Personal Computers 2537

BITS & BYTES

Recently Updated and Published Documents 2537

USERS GROUP HIGHLIGHTS

Minutes of Computer Users Group Meeting Held June 7, 1988 2539
Minutes of Macintosh Users Group Meeting Held June 8, 1988 2540
Minutes of Graphic Arts Users Group Meeting Held June 9, 1988 2542

COMPUTING CENTER STATISTICS

COMPUTING CENTER TELEPHONE NUMBERS AND SERVICE SCHEDULE

SUBJECT INDEX

APPENDIX
Computing Center Classes

COMPUTING SERVICES

Argonne National Laboratory
Building 221
Argonne, Illinois 60439

Computing Services provides the computing and communications foundation for Argonne's scientific and technical programs and administrative activities. We operate computers to provide interactive and batch services, operate the Laboratory's voice and data communications systems, and perform analysis and programming services. Computing Services coordinates the development of and provides assistance for an integrated hierarchy of systems: personal desktop computers, distributed minicomputers, large-scale central computers, and supercomputers; we have special responsibility for placing the Laboratory in a position to exploit technological advances tied to state-of-the-art computing. Computing Services provides leadership in optimizing computing and information services and disseminating computer-related technologies throughout the Laboratory. Computing Services implements computing policy formulated by the Argonne Computing Policy Committee, for which we draft plans and prepare recommendations; and we work with the other Argonne divisions and programs, user groups, and Laboratory management to determine specific needs and priorities.

		Room	Phone	Electronic Mail Address
Manager of Computing Services	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Networks	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Telecommunications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Information Systems	Diane Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	A209	2-8075	B31048 AT ANLVM
Human Resource and Plant Services Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Material Systems	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Information Technology Resources Planning	Mike Boxberger	A245	2-5639	B34540 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Rich Slade	B139	2-7674	B32848 AT ANLVM

Computing Services operates a Cray X-MP/14 with UNICOS 3.0, a DEC VAX-11/750, a DEC VAX 8700, a DEC VAX 8250, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 4, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

The *Argonne Computing Newsletter* is published monthly by Computing Services, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger and Lynne Brooks with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

SUMMER INSTITUTE IN PARALLEL COMPUTING

The Advanced Computing Research Facility (ACRF) in the Mathematics and Computer Science Division will host a two-week Institute in Parallel Computing from September 6 through 16, 1988. The Institute, funded by the National Science Foundation and the U.S. Department of Energy, will host 25 graduate students and postdoctoral researchers. Faculty will include Argonne staff members and visitors from universities and industry. To find out more about the Institute, contact Teri Huml at (312) 972-7163 or at electronic mail address huml@anl-mcs.arpa.

MATHEMATICS AND COMPUTER SCIENCE SIMD PROGRAMMING TECHNIQUES SEMINAR

The Mathematics and Computer Science Division will hold a two-day seminar (Monday and Tuesday, July 25-26, 1988) on techniques for programming the two single-instruction multiple-data (SIMD) machines in the Advanced Computing Research Facility (ACRF): the Connection Machine-2 (CM-2) and the Distributed Array Processor (DAP). Some previous experience in programming other parallel computers is necessary. The seminar will cover SIMD programming models and programming in DAP Fortran, C*, C/Paris, and Fortran/Paris. The seminar will also include an opportunity to run programs on the 16,384 processor CM-2 and the 1,024 processor DAP 510.

To register for the seminar, contact:

Teri Huml
Mathematics and Computer Science Division
Argonne National Laboratory
Argonne, IL 60439-4844
(312) 972-7163
huml@anl-mcs.arpa

There is a $25.00 charge for this class, and no financial assistance for attendees is available.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m. on Wednesday, Thursday, and Friday, July 27-29, 1988) on how to use the Argonne Advanced Computing Research Facility (ACRF). The class will instruct users on how to write programs for the parallel computer systems in the ACRF.

The class will cover the following topics: (1) automatic parallelizing compilers, (2) packages for portable parallel programming (including the Monitor package and the Schedule package), (3) hypercube programming, (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of the Unix file system, an editor, and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at (312) 972-7163 or at electronic mail address huml@anl-mcs.arpa. There is a $25.00 charge for this class.

COMPUTING CLASSES SCHEDULED FOR JULY 1988

During July 1988, Computing Services will offer three classes. The schedule is appended to this *Newsletter*. To register, call or visit the Computing Services Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. Computing Services will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Using VAX/VMS (one 3-hour session) will acquaint VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

Using the Cray X-MP from the VAX Supercomputer Gateway (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the recently installed Digital Equipment Corporation (DEC) VAX station. Like the counterpart MVS station class, this class requires familiarity with UNICOS and shell programming. This class focuses on using the VAX station to access the Cray in a batch environment (although it will include some basic instruction for using UNICOS interactively).

Cray X-MP Architecture and Vectorization Techniques (two 3-hour sessions) is for users who want to optimize their Fortran program to take full advantage of the Cray X-MP/14 high performance computer. Topics include Cray X-MP architecture, vectorization, optimization, programming techniques, and code examples.

NEW CICS APPLICATION MENU SCREEN

On Monday, July 18, 1988, Computing Services will provide a new application menu screen under the Customer Information Control System (CICS). This screen covers all online administrative applications currently available under CICS plus any news items of interest to CICS users. Figure 1 shows the new menu screen, which simplifies user procedures for accessing selected administrative applications.

You will receive the menu screen immediately after logging onto CICS. You can also invoke the menu screen by entering

```
MENU
```

or

```
HELP
```

and pressing the ENTER key at any time during your CICS session. You may select any administrative application for which you have been enrolled. If you happen to select one for which you are not enrolled, the system will issue a security violation message, and you will need to follow new instructions that appear on the screen.

CMS NEWS

SPEAKEASY IV VERSION EPSILON AVAILABLE FOR TESTING IN CMS

Speakeasy IV Version Epsilon is available for user testing on the SPEAKEZ 2 minidisk in CMS. The new features in this release of the Speakeasy IV System are fully described in *Highlights of Epsilon,* available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Among the new features of Epsilon are the first official release of a major new graphics package and a preliminary release of keyword-driven online documentation. Since these features are still under development, you can report difficulties or suggestions to the User Services consultants, who will report them to the vendor.

Also included with this release are a variety of new matrix manipulation operations, a new Speakeasy interface to Fortran subroutines and functions, and many efficiency enhancements.

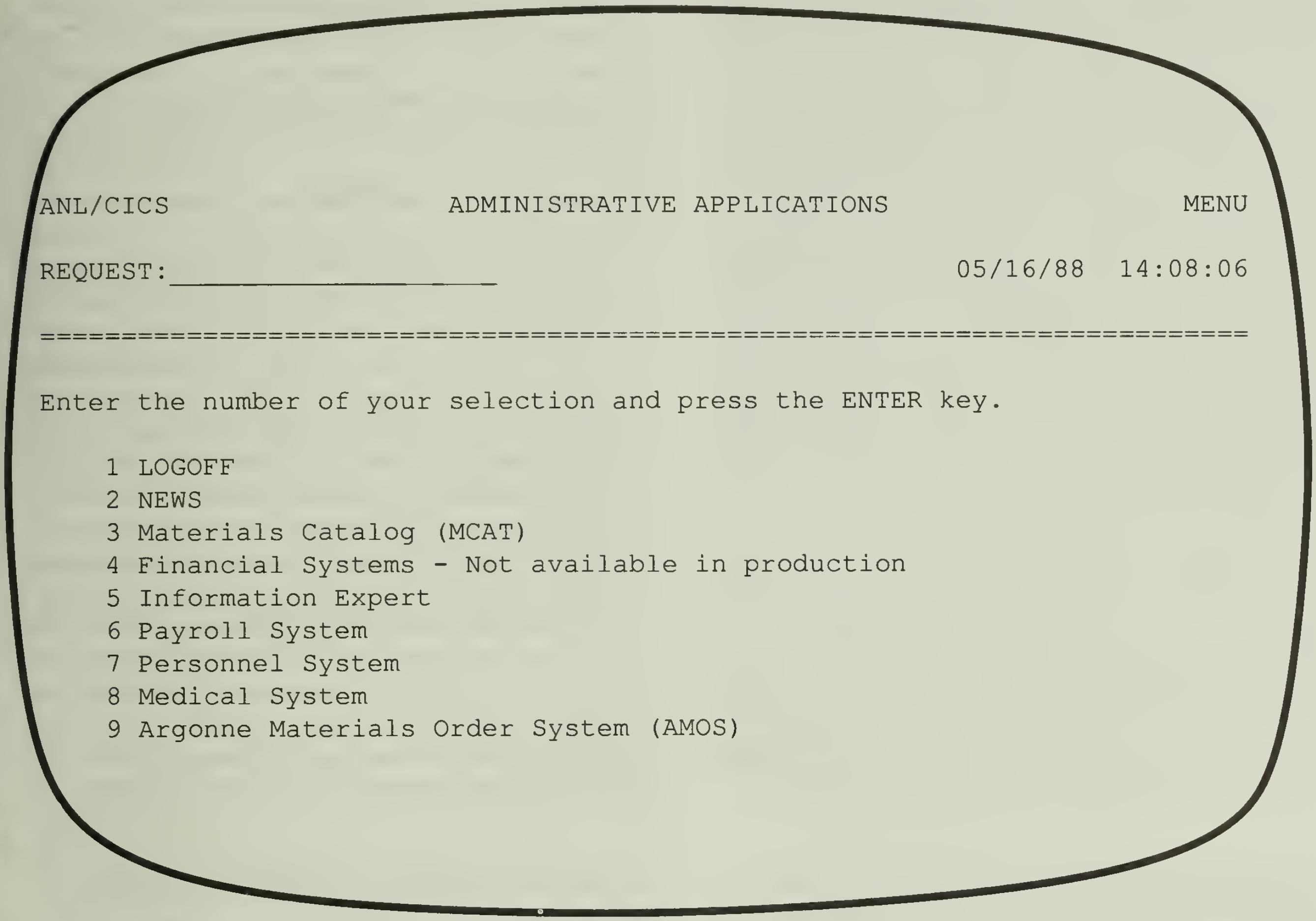
To use Speakeasy IV Epsilon, issue the following commands:

```
CP LINK SPEAKEZ 2 vaddr
ACCESS vaddr filemode
SPEAKEZ
```

where "vaddr" is any unassigned virtual address and "filemode" is any unassigned filemode letter occurring alphabetically before any filemode letter associated with the SPEAKEZ 1 minidisk in your virtual machine.

For a complete description of Speakeasy, see the *Speakeasy IV Reference Manual,* available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). For information on the new features and the changes in Speakeasy IV Epsilon, enter (in Speakeasy):

```
HELP NEWS
```



```
ANL/CICS                   ADMINISTRATIVE APPLICATIONS                     MENU

REQUEST:____________________                                05/16/88  14:08:06

===========================================================================

Enter the number of your selection and press the ENTER key.

    1 LOGOFF
    2 NEWS
    3 Materials Catalog (MCAT)
    4 Financial Systems - Not available in production
    5 Information Expert
    6 Payroll System
    7 Personnel System
    8 Medical System
    9 Argonne Materials Order System (AMOS)
```

Figure 1: New CICS Application Menu Screen

CRAY NEWS

TCP/IP ACCESS FOR CRAY UNICOS TESTING

Computing Services has installed the Transmission Control Protocol/Internet Protocol (TCP/IP) Supercomputer Gateway to provide TCP/IP access to the ANL Cray UNICOS system. This Gateway consists of a Sun-3/280 computer with a FEI-3S VME interface from Cray Research, Inc. and TCP/IP software on the Cray. Initial testing by Computing Services and a small group of "pioneers," who agreed to test the gateway under potentially disruptive conditions, is now underway. Once we have satisfactorily completed testing, the TCP/IP gateway will be available to users. Computing Services is providing TCP/IP access for those users who are already familiar with TCP/IP capabilities and plans no TCP/IP classes at the present time.

Users on workstations and multi-user systems that run the TCP/IP suite of network protocols and are connected to the Laboratory-wide Ethernet network may use the **rlogin** or **telnet** commands to logon interactively to the Cray and may use the **ftp** and **rcp** commands to copy files between their local file system and the Cray file system. Presently, you cannot submit NQS batch jobs from your TCP/IP host to UNICOS. However, you can prepare NQS batch jobs on your host, transfer them to the Cray with **ftp** or **rcp,** and submit them with the UNICOS **qsub** command during an interactive UNICOS session established with the **telnet** or **rlogin** command. Central computers available for TCP/IP access to the Cray are the VAX 8700 (ANLCV1) and the IBM 3033 running VM/SP (ANLVM). We advise users that interactive access to the Cray is expensive; therefore, activities like file editing are more appropriate for local workstations or other timesharing systems.

TCP/IP software running on the Cray under UNICOS is derived from the 4.2 release of the Berkeley Software Distribution (4.2BSD); therefore, the commands on the Cray are very similar to those on other 4.2BSD Unix systems. The TCP/IP commands in UNICOS (**telnet, ftp, rlogin, rcp,** and **remsh**) are documented in the *UNICOS User Commands Reference Manual* (SR-2011) and the *TCP/IP Network User's Guide* (SG-2009). The latter manual also discusses TCP/IP networking concepts; users already familiar with TCP/IP on another system need not obtain that manual. Computing Services will add documentation to *Guide to UNICOS at ANL* (ANL/TM 460) describing how to access UNICOS via TCP/IP from ANLCV1 and ANLVM. These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

The node name of the Cray is XMP with IP address 192.5.175.5. The node name of the TCP/IP gateway to the Cray X-MP/14 computer is SUNGATE with IP address 192.5.170.5. The Cray X-MP/14 IP address published in the June 6, 1988, draft of *Guide to UNICOS at ANL* (ANL/TM 460) is incorrect. As we are in a test environment, watch online NEWS for additional information.

VAX SUPERCOMPUTER GATEWAY TO THE CRAY X-MP/14 AVAILABLE FOR GENERAL USE

The new VAX Supercomputer Gateway to the Cray X-MP/14 computer is now available for general use. The VAX Supercomputer Gateway consists of a Digital VAX 8250 computer with a custom interface and VAX/VMS Station software from Cray Research, Inc. The VAX Gateway is a part of the central VAX cluster and is DECnet node ANLVG. All central VAX 8700 users are authorized to use the VAX Gateway by using their existing VAX cluster accounts. To get a VAX cluster account, call Account Services at extension 2-5425.

VAX Gateway users will temporarily need to supply their Cray UNICOS password when submitting a batch job to the Cray. Computing Services is actively working on eliminating all passwords from Cray batch jobs.

Online HELP is available for the VAX Gateway. After logging on to the ANLVG, enter:

```
CRAY HELP
```

The draft of *DEC VAX/VMS Station Reference Manual* and the draft of *DEC VAX/VMS Station Primer for UNICOS* (SV-0361) are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

CHARGE FOR WAIT TIME SUSPENDED

Users of the Cray X-MP/14 have reported to us that one of the factors in our charging algorithm (Input/Output Storage Occupancy) did not conform to our rate development model. Our investigation uncovered two difficulties: (1) the latest version of UNICOS introduced a system bug that caused excessive elapsed times for a job and (2) the value reported as I/O WAIT time is not what is commonly considered to be I/O WAIT time. Therefore, as of May 12, 1988, Computing Services has suspended the Input/Output Storage Occupancy Rate charge for the Cray UNICOS system. We do not intend to increase the Cray rate structure for the balance of FY1988 to compensate for this loss. During our discussions this summer for FY1989 funding for central computing resources, we will consider Cray UNICOS rate structure revisions.

PLANS TO INCREASE CRAY UNICOS DISK SPACE

Computing Services plans to quadruple the current Cray X-MP/14 disk storage capacity with the installation of a Cray Research, Inc. DS-40 disk subsystem in early FY1989. A 20.8 gigabyte storage capacity DS-40 disk subsystem will replace the four existing Cray DD-49 disk storage units, which now provide a total capacity of 4.8 gigabytes of storage space. The new DS-40 disk subsystem is scheduled for delivery in November 1988.

The increase in directly attached disk storage on the Cray X-MP/14 will provide more disk storage for Cray online files; will reduce dependencies on front-end availability for staging datasets; and will permit Computing Services to review its disk storage charges and its policies on the number, size, and duration of files stored on Cray disks. (See "Computing Services Tests IBM Disks Attached to Cray X-MP" in this *Newletter.)*

As the actual installation date approaches, watch the *Newsletter* for more detailed information about schedules and revised policy changes.

COMPUTING SERVICES TESTS IBM DISKS ATTACHED TO CRAY X-MP

Computing Services has initiated a project to attach IBM 3380 disk drives to the Cray X-MP running UNICOS. To date, Computing Services has demonstrated the feasibility of this approach by successfully creating and retrieving UNICOS files on the IBM disks. Further testing is necessary on error recovery and performance, but we expect that these disks will be available for general use in August 1988.

We will use these IBM 3380 UNICOS-formatted disks for low activity and small files. By complementing the current Cray disks (which have limited capacity) with these highly reliable, large-capacity, inexpensive disks, we can change our data management policies so UNICOS users can keep more data on the UNICOS system and reduce the need to stage data to and from the various front-end systems.

The increase in directly attached disk storage on the Cray X-MP/14 will provide more disk storage for Cray online files; will reduce dependencies on front-end availability for dataset staging; and will permit Computing Services to review its disk storage charges and its policies on the number, size, and duration of files stored on Cray disks.

GRAPHICS NEWS

REVISED FILM PROCESSING SCHEDULE INCLUDES VIEWGRAPHS ON MATRIX CAMERA

Computing Services has revised its film processing schedule to include viewgraphs (8 inches by 10 inches) available on the Matrix camera. Table 1 shows the revised film processing schedule.

Users who have a particular deadline to meet should contact Computer Operations at extension 2-5421 to confirm this schedule and to make special arrangements when necessary. Changes in this schedule (because of equipment failure) are also announced in the System Status Recorded Message on extension 2-5466.

DISSPLA 10.5 NOW AVAILABLE FOR TESTING IN MVS

Disspla 10.5 is available for user testing in MVS. Disspla 10.5 contains several enhancements and corrections for reported bugs. The enhancements include (1) the use of User Map Files, (2) advanced pie features, (3) the elimination of the need to declare blank common or call routine BCOMON to use the land blanking function, (4) the ability to use both contouring and land blanking in the same program, and (5) improved device interface capabilities (including the American National Standards Institute (ANSI) standard Computer Graphics Metafile (CGM) device driver.

To use Disspla 10.5 with VS Fortran in MVS, add the parameter

```
PRELIB='SYS2.DISLIBVS'
```

to the cataloged procedure you use when linkediting or loading your plotting programs. Fortran H Extended users should use:

```
PRELIB='SYS2.DISLIBHX'
```

The *Disspla User's Manual Version 10.5* is the latest documentation available. This document is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). Users may update Version 10.0 of the *Disspla User's Manual* with the CA-DISSPLA 10.5 update package consisting of Disspla Part F and the *CA-DISSPLA Bulletin of Release Information on Enhancement Fixes, Version 10.5*, which is also available at the Document Distribution Counter.

Table 1: Film Processing Schedule

Film Type	*Days of Week*	*Batch Job Completed By*[1]	*Output Distributed By*[2]
Color Film			
MATRIX			
35mm Slides and Negatives	Monday to Friday	7:30 a.m.	12:00 noon
		11:00 a.m.	1:30 p.m.
		3:30 p.m.	8:30 a.m. next day
Viewgraphs (8x10)	**Monday to Friday**	**11:00 a.m.**	**1:30 p.m.**
		3:30 p.m.	**9:00 a.m. next day**
FR80			
S35CLR (Slides)	Monday to Friday	10:00 a.m.	1:30 p.m.
		2:00 p.m.	8:30 a.m. next day
S35CLR (Negatives)	Monday to Friday	1:00 p.m.	11:30 a.m. next day
S16CLR	Monday to Friday	3:30 p.m.	2 Days Later
Black and White Film			
U35BW	Monday to Friday	7:30 a.m.	8:30 a.m.
	Monday to Friday	11:00 a.m.	12:15 p.m.
	Monday to Friday	2:30 p.m.	3:30 p.m.
	Saturday	8:30 a.m.	12:30 p.m.
S35BW	Monday to Friday	9:00 a.m.	10:00 a.m.
S16BW	Monday to Friday	9:30 a.m.	2:00 p.m.
U105BW	Monday to Friday	1:00 p.m.	2:00 p.m.

[1] The job must be completed and data (tape or spooled reader file) available to be processed at the FR80 or Matrix camera by the indicated time.

[2] Black and white film is scheduled for distribution as indicated except on Christmas Eve, Christmas Day, New Year's Eve, and New Year's Day when no operators are present. No color film is scheduled for distribution on any Laboratory holiday or during the Laboratory closing period at Christmas through New Year's. Also, distribution of color film scheduled for "next day" will be distributed on the next business day when "next day" is a weekend day or Laboratory holiday. **When you have special requirements that are not met by this schedule, contact the Computer Operations Manager at extension 2-5437.**

MVS NEWS

MAXIMUM MVS REGION SIZE REDUCED

The MVS user region is being reduced because of the additional memory requirements of computer networking, the Integrated Financial System, Computing Services software testing, and already heavy job management duties. Consequently, Computing Services is lowering its guaranteed maximum user region size to 6 megabytes (REGION=6144K) from the previous 8 megabytes. However, at special request, Computing Services will provide an 8-megabyte region for weekend processing (CLASS=Y). We must shut down the production system to provide this service.

Computing Services cannot regularly predict the exact size of the user region, because it is determined dynamically each time the MVS operating system is initialized. In fact, Computing Services has observed that the available user region can vary by approximately 300K, depending on the software testing being performed.

Computing Services believes that this reduction in maximum region size does not affect most users, particularly with the availability of the Cray X-MP/14 computer and the VAX 8700 computer. The Cray X-MP/14 can provide up to 24 megabytes of memory for user programs, and the VAX 8700 can provide regions as large as 35 megabytes. Users who believe that the lack of an 8-megabyte MVS region will adversely affect them should notify the User Services consultants at extension 2-5405.

TELECOMMUNICATIONS NEWS

PBX ACCEPTANCE

Argonne has now accepted the InteCom S/80 Private Branch Exchange (PBX) installed by Bell Atlanticom Systems, Inc. Since the cutover (September 19, 1987), we have been testing the system and correcting some post cutover difficulties. The system is now very reliable both in voice and data communications. The acceptance of the system is the culmination of a large two-year installation effort by Procurement, Plant Facilities and Services, Computing Services, and Bell Atlanticom personnel. The use of the system has grown dramatically. Currently, there are approximately 35,000 calls per day. We have 5,560 lines; 1,203 of these lines have asynchronous or synchronous electronic data stations associated with them. Thirty-nine stations provide connections to LANmark, the PBX facility that emulates a Laboratory-wide local area network (including gateways to 24 distributed Ethernet networks). Bell Atlanticom will continue to maintain the PBX and will work with the Laboratory and InteCom for future improvements and enhancements. To report difficulties, call extension 2-4400.

ARGONNE USERS SHOULD USE MKO WITH ASYNCHRONOUS DATA INTERFACES

The Private Branch Exchange (PBX) offers the Machine Keyboard Origination (MKO) service option to allow users to originate data calls from their terminal keyboard. To use MKO, you must have an Asynchronous Data Interface (ADI) connected to your terminal. MKO prompts the user for calling information and places data calls without interfering with voice service. We automatically assign MKO to ADI's without telephones. Users who have an ADI with a telephone who wish to have MKO must request it by contacting their local data coordinator.

You may place data calls by using MKO without affecting voice calls. Without MKO, before you place a data call while conducting a voice call, you must first place the voice call on hold and retrieve it after placing the data call.

MKO does not permit you to type ahead. If you enter characters before MKO asks the question, it ignores them. Offsite calls always use dial-7 access. MKO automatically enters the 7--you must not enter it. Dashes (-) are valid separators when you enter phone numbers. MKO ignores them. MKO has a 10-second idle timer that starts after each message sent to the user and after each character received from the user. If you do not respond to a message within 10 seconds, MKO sends the message **timeout** and drops the call. You will have to start over.

UPGRADED HYDRA PROTOCOL CONVERTER AVAILABLE FOR TESTING

Users will soon notice a change in the terminal selection menu when they logon to the central IBM systems through the Hydra Protocol Converter. The new selection menu enables a greater variety of terminals to work with the Hydra. Additionally, the upgraded Hydra fixes the difficulty of local terminal definitions disappearing when the Hydra resets itself. To allow for more terminal types, the manufacturers have replaced the single-character terminal selection symbols with a four-character descriptor. Table 2 describes new and old responses for the most popular terminals.

Table 2: New Hydra Descriptors

Terminal	*New Response*	*Old Response*
VT100	V100	V
Televideo 950	T950	T
ANL VT100	ANVT	(
ANL Televideo 950	ANTV	!
VT52	VT52	D
IBM PC/RELAY Gold	IBMP	=

We have set up some test ports at extension 2-7707 for users to try the new hardware. We plan to upgrade all the ports by August 15, 1988; therefore, we suggest that users try the upgraded Hydra before then and report any difficulties to the User Services consultants at extension 2-5405.

Following is the new logon procedure:

- Configure your terminal according to the specifications in Chapter 2 of *Using the Hydra Protocol Converter for IBM Full Screen Terminal Emulation at ANL* (ANL/TM 457). This manual is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). (We are updating this manual to reflect the upgraded Hydra Protocol Converter.)
- Connect your terminal to the Hydra at extension 2-3270 (extension 2-7707 for the test period) by using either a modem or an ADI 100.
- Press RETURN and the space bar alternately until a terminal selection menu appears.
- Enter the four-character descriptor for your terminal.
- Continue with your usual logon procedure.

Users of the RELAY Gold software who have their own scripts for logging on will have to modify their script file for selecting the four-character descriptor (IBMP instead of =). Computing Services will change the appropriate Hydra key files and RELAY Gold script file on the CMS Z-disk and create updated Kermit and MacKermit disks that reflect key file changes when we upgrade all ports for the Hydra Protocol Converter. In the past, when using the Hydra Protocol Converter, there was a possibility of another person accidentally gaining access to your session if you did not logoff properly. Although such circumstances were rare, we believe the potential difficulty still exists and caution users who have access to sensitive information.

ELECTRONIC MAIL DISCUSSION GROUPS AVAILABLE ON BITNET

Computer users of CMS, Wylbur, and VAX/VMS systems connected to the Argonne network have an opportunity to join various discussion groups that use the BITnet network as a means of electronic communication.

Table 3 shows a sampling of topics currently available.

Table 3: Sampling of BITnet Discussion Topics

Topic Description	*Listname*	*Nodename*
DECUS	DECUS-L	UBVM
Epidemiology and biostatistics	EPID-L	QUCDN
Finite element modeling	CAEDS-L	FINHUTC
Issues related to handicapped people in education	L-HCAP	NDSUVM1
Organic chemistry	ORGCHE-L	EB0UB011
Polymer physics	PolymerP	HEARN
Statistical Analysis System (SAS)	SAS-L	UGA
VS-Fortran use	VFORT-L	JHUVM

Many other discussion groups are available. To receive a list of available groups with a brief description of each, use one of the following commands (depending on the interactive system you use):

With the CMS NOTE command:

```
NOTE NICSERVE AT BITNIC
```

Then SEND the note after inputting the following line:

```
SENDME LISTSERV GROUPS
```

(You will receive the file LISTSERV GROUPS in your virtual reader.)

With VAX/VMS:

```
MAIL
SEND
TO:  GATEWAY::"NICSERVE@BITNIC"
SUBJ:  C/R
```

Then press crtl/Z after inputting the following line:

```
SENDME LISTSERV GROUPS
```

(You will receive the file LISTSERV GROUPS in your VMS reader directory, typically, [Bnnnnn.READER] .)

With Wylbur:

```
COMMAND? COLLECT
  1.00 SENDME LISTSERV GROUPS
  2.00 <attn>
COMMAND? DO SENDFILE
   SENDFILE will send the ACTIVE file to the
addressee specified. Enter full network address of
addressee, HELP, or press RETURN to quit.
ENTER? NICSERVE AT BITNIC
OK to send file (Yes/OK/Save/No) OK
JOB Bnnnnnnn SUBMITTED
```

(You will receive the file LISTSERV GROUPS as a FETCH file.)

Once you have found a BITnet discussion group that you find interesting, you will need to send a command to the appropriate BITnet node that manages the discussion group:

In CMS:

```
NOTE LISTSERV AT nodename
```

Then SEND the note after inputting the following line:

```
SUBSCRIBE listname yourname
```

In VAX/VMS:

```
MAIL
SEND
TO:  GATEWAY::"LISTSERV@nodename"
SUBJ:  C/R
```

Then press crtl/Z after inputting the following line:

```
SUBSCRIBE listname yourname
```

In Wylbur:

Create a line in ACTIVE:

```
SUBSCRIBE listname yourname
```

Enter:

```
DO SENDFILE
```

Specify address:

```
LISTSERV AT nodename
```

where "nodename" is the BITnet nodename hosting the discussion group, "listname" is the name of the discussion group, and "yourname" is your name (for example, John Doe).

To cancel your subscription, use the above procedures to send the command:

```
SIGNOFF listname
```

VAX/VMS NEWS

CENTRAL VAX CLUSTER REMOTE PRINTER SERVICE AVAILABLE

Central VAX cluster users can now have their output printed on remote printers. If there is a printer attached to a Local Area Transport (LAT) Ethernet terminal server in your area, you can direct your print output to that printer. The printer must be either an ASCII or a PostScript printer.

Many LAT terminal servers already have printers attached to them. VAXes connected to the Laboratory-wide Ethernet can send files to these LAT terminal server printers. Each of these VAXes must have a VMS print queue for each printer to be served. The LAT terminal server in each printer area coordinates the use of the attached printer.

LAT printer owners can now have VMS print queues defined on the central VAX cluster to queue output for their remote printers. Owners interested in this remote printer service are responsible for the operation and maintenance of their printers. When multiple users share the remote printer, the printer owner will be responsible for assisting and coordinating this use. The owner will need to designate someone at the remote printer site to serve as a coordinator for printer users and Computing Services operators.

The printer coordinators need accounts on the central VAX cluster. They will be authorized to perform functions on their central VAX cluster print queue (such as starting, stopping, and modifying the print queue). They will also need to configure the LAT terminal server port to which the printer is attached. Cost centers that have assigned a central VAX cluster group manager may wish to have this individual also be their printer coordinator. The printer coordinator handles questions about the order of printing files, rerouting print files, canceling print files, and coordinating the use of different print forms and fonts. Computing Services can only provide limited assistance by (1) starting the central VAX cluster print queue, (2) rerouting, reordering, or canceling jobs for a specific user at that user's request (when the user cannot do it), and (3) redirecting output to another printer according to prearranged instructions from the printer's owner.

To establish a central VAX cluster print queue, the printer owner must complete an application. The application contains information to specify the print queue, the printer type, a contact person, and the printer location. The application can be viewed from a central VAX cluster account by entering:

```
TYPE/PAGE ANLCVC_COMMON:[SYSMGR]REMOTE_PRINTER.APPLICATION
```

Print the application form, complete it, and send it to the Computing Services Software Librarian (Building 221, Room B-220). Computing Services will process the application and will establish the required print queue on the central VAX cluster. Computing Services' existing "Remote Printing" line rate will apply for output sent to the remote printers. See *Computing Services Rates,* available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

If you have any questions about this service, contact either Rich Raffenetti at extension 2-8497 or Barry Miller at extension 2-6808.

MACSYMA AVAILABLE ON THE VAX 8700

MACSYMA is a computer tool that performs both symbolic and numerical mathematical manipulations. With MACSYMA, you can differentiate, integrate, take limits, solve systems of linear or polynomial equations, factor polynomials, expand functions in Laurent or Taylor series, solve differential equations (by using direct or transform methods), compute Poisson series, plot curves, and manipulate matrices and tensors. In MACSYMA you use the LISP language. This language permits you to write programs transforming symbolic expressions. The *MACSYMA Reference Manual* (Volumes I and II) are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

To use MACSYMA on the VAX 8700, first enter

```
$ SETUP MACSYMA
```

to create the MACSYMA environment. To run MACSYMA, enter:

```
$ MACSYMA
```

To exit MACSYMA, enter:

```
QUIT();
```

DESK CALCULATOR AVAILABLE ON THE VAX 8700

Computing Services has implemented a full screen online desk calculator with scientific and engineering functions for use from Digital VT terminals and VT terminal emulators. A window creates the image of a calculator on the screen to show the mapping of the terminal keypad to the calculator keys. Command qualifiers create additional windows on the terminal to display help and configuration options and to view the calculation history tape (analogous to a calculator's paper tape).

The program offers the four basic arithmetic functions, thirteen additional math functions, a degrees/radians switch, a constant key, and a six-function memory register. You can (1) get a record of your calculations by using the calculation history, (2) specify fixed-point or floating-point display, and (3) choose the numbering system of the display (octal, hex, or decimal). The program operates the same as a standard desk calculator. To invoke the calculator, enter:

```
$ DSCALC /options
```

There is no user manual, but online HELP is available to guide you in discovering all of the calculator features and option values and to provide usage hints. To invoke online HELP, enter:

```
$ HELP DSCALC
```

LATEX AND TEX NOW AVAILABLE ON THE CENTRAL VAX 8700 COMPUTER

LaTeX and TeX are now available on the central VAX 8700 computer. TeX is a typesetting language developed by Donald E. Knuth of Stanford University to create technical documents containing complex mathematical equations. Both LaTeX and TeX require a great deal of time to master; however, LaTeX is easier to learn than TeX. Figure 2[1] is an example of text[2] produced by the TeX program. Although most users consider the generation of mathematical expressions to be TeX's forte, TeX also produces tables. You can obtain *The TeXbook* and the *LaTeX User's Guide and Reference Manual* at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

---

[1] We extracted the example in Figure 2 from *The Equivalence of Dirac-Kähler and Staggered Lattice Fermions in Two Dimensions* (ANL-HEP-PR-87-112) provided by Geoffrey T. Bodwin (High Energy Physics).

[2] We prepared the text for this article by using Waterloo Script and creating the PostScript output file. TeX and DVIALW created a PostScript file for Figure 2 that was merged with the PostScript file for the text.

In order to derive the graphical Ward identities, we concentrate on L_f. In general, the terms in the Lagrangian consist of products of fermion bilinears and gauge field link variables U (which are defined in (2.17)). We expand the link variables in L_f in a power series in the coupling e and introduce the Fourier transforms of the gauge field $\mathcal{A}_\mu$ and the fermion field ψ:

$$\psi(x) = \int_{-\pi/a}^{\pi/a} \frac{d^d k}{(2\pi)^d} e^{ik\cdot x} \psi(k),$$

$$\mathcal{A}_\mu(x) = \int_{-\pi/a}^{\pi/a} \frac{d^d l}{(2\pi)^d} e^{il\cdot[x+(a/2)\hat{\mu}]} \mathcal{A}_\mu(l).$$

Figure 2: Example of Text and Equations Produced by TeX

To use LaTeX or TeX, you must create a file **.tex** that contains LaTeX or TeX commands. Then enter (at the DCL level)

```
$ SETUP TEX
```

to create the TeX environment. (This statement is the same for both TeX and LaTeX.)

To invoke LaTeX or TeX, enter

```
$ LATEX filename.filetype
```

or

```
$ TEX filename.filetype
```

The default filetype is **.tex**.

This process may require you to respond to TeX messages: in some cases a carriage return will suffice. Refer to the reference manuals for the appropriate action. When the program returns you to the DCL level, you will find that the TeX program has created additional files with the filetypes of **.aux**, **.lis**, and **.dvi** to your current directory. The **.aux** file is used by TeX, and the **.lis** file contains a listing of the messages you received when TeX or LaTeX was invoked. TeX creates a **.dvi** file as the standard TeX output file (which is device-independent). To create files for a PostScript printer (which is currently the only printer type available on the central VAX 8700 for TeX) from the **.dvi** file, enter:

```
$ DVIALW filename
```

The default filetype for this command is **.dvi.**

The DVIALW program has optional parameters ("d" is a digit reflecting the appropriate unit). They are:

-cd	Select the number of copies. The default is one.
-md	Select font magnification. The default is 1500. Other valid magnifications are 913 for a smaller font and 1800 for a larger font. If the number you specify is unavailable, the program will substitute the closest size available.
-xdin	Select the width of the left margin. By default, your page margin will be calculated from any TeX or LaTeX settings and magnification parameter.

This option will override all others if you use it. The number can be negative (for example, -x-.3in, where 1.0in = one inch).

-ydin Select your top margin. By default, your page margins will be calculated from any TeX or LaTeX settings and magnification parameter. This option will override all margin settings if you use it. The number can be negative (for example, -y-1.0in, where 1.0in = one inch).

An example with these options is:

```
$ DVIALW -c5 -m946 -x.2in -y.2in sample
```

This PostScript device driver will create a file with a filetype of **.dvi-alw.** This file contains all the PostScript commands necessary to print your file on a PostScript device. You can send this file to any PostScript output device. For example:

```
$ SEND PRINT filename.DVI-ALW ANLOS RM111PR1 POSTSCRI
```

where "RM111PR1" refers to the typesetter in Graphic Arts and "POSTSCRI" designates the file as a PostScript file. You can also send this file to any ANLOS PostScript output device with the **PSLIST** command. The **PSLIST** command designates the file as a PostScript file. For example:

```
        $ PSLIST filename.DVI-ALW RM113PR2
```

where "RM113PR2" refers to the Computing Services Apple LaserWriter.

PERSONAL COMPUTING

RECOMMENDED ETHERNET BOARDS FOR IBM PERSONAL COMPUTERS

Computing Services advises users to consider three factors when selecting an Ethernet adapter board for connecting IBM Personal Computers and IBM Personal System/2s (PS/2s) to Ethernet local area networks: connectivity, software compatibility, and computer type. Table 4 summarizes the connectivity options of several software packages that Computing Services has evaluated.

Table 4: Connectivity of Personal Computer Software Products

Software Product	*Uses*
3Com 3Plus	3Com XNS networks
DEC DECnet-DOS	DECnet networks
Sun PC NFS	TCP/IP networks, Network File System
Univ. of Illinois NCSA Telnet	TCP/IP networks

Table 5 lists the software compatibility of the recommended 3Com Ethernet boards for various computer types.

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

Computing Services periodically publishes manuals to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing Services Documents

The June 6, 1988, draft of *Guide to UNICOS at ANL* (ANL/TM 460) describes how to use the Central Cray X-MP computer at ANL. It covers the Cray X-MP/14 hardware, the Cray UNICOS operating system, the Cray Network Queuing System (NQS) batch subsystem, and the MVS and VAX/VMS front-end station services that provide access to the Cray. Because this document is a rapidly changing draft, formatting inconsistencies occasionally appear. Please inform us of factual errors and inconsistencies (call Alan Hinds at extension 2-8124 or leave a message at extension 2-5415).

Table 5: Software Compatibility of Recommended 3Com Ethernet Boards for IBM Personal Computers

	3Com 3Plus	*DECnet DOS*	*Sun PC NFS*	*NCSA Telnet*
For PC, PC-XT, PC-AT, and PS/2 Model 30:				
Etherlink 3C501	Y	Y	Y	Y
Etherlink II 3C503	Y	N	Y	N
Etherlink Plus 3C505B	Y	N	Y	N
For PS/2 Models 50,60, and 80:				
Etherlink/MC 3C523	Y	N	Y	Y

Y = compatible
N = not compatible

The *ANL Site Response for the DOE FY1990 Information Technology Resources Long-Range Plan* (ANL/TM 461) is one of many contributions to the DOE information technology resources long-range planning process. It provides data on these resources over an eight-year period consisting of the base year (FY1987), the current year (FY1988), the budget year (FY1989), the plan year (FY1990), and the out years (FY1991-FY1994). This document consists of four parts: Part 1, "Site Overview," describes the ANL mission, the overall organizational structure, the strategic approach toward meeting information technology resource needs, the planning process, major issues, and points of contact. Part 2A, "IS Plans for DOE Contractors," defines the current and planned automated information systems associated with the management of ANL, the stewardship of its resources, and the provision of day-to-day general operations and services. Part 3, "Computing Resources Plan," defines the requirements, resources, acquisitions, and budget for computing at ANL for FY1987 through FY1994. Part 4, "Telecommunications Plan," documents the existing and planned telecommunications resources required at ANL from FY1987 through FY1994.

CMS at ANL (ANL/TM 423, Revision 1) is an ANL supplement to IBM VM/SP technical documentation on VM/SP. In most instances it serves as the single repository for VM/SP policy and enhancements at Argonne National Laboratory. When appropriate, it points to material available in other documents; it does not ordinarily duplicate information available in vendor documentation or in other Computing Services technical memoranda. This revision supersedes the first printing of *CMS at ANL.*

The *Reference Card For Using The Online Materials Catalog Through CICS* describes the Materials Catalog and how to use it through the Customer Information Control System (CICS). The *Card* contains a section on accessing the online catalog through CICS (that is, logging on and off procedures from different networks) and instructions on seven options available to the user: responding to prompts, identifying a catalog code, searching for an item, requesting an expanded item description, scrolling through the catalog, printing a catalog listing, and exiting from the catalog.

Computer Associates, Inc. Documents

The *CA-CUECHART User's Guide* (RG 99 CC 2001S) provides information for all levels of users on Cuechart--a software for chart making. It consists of five chapters: (1) "An Overview of Cuechart" describes what it is and what its capabilities are; (2) "Getting Started" discusses terminal selection, data collection, file creation, and commands; (3) "Running Cuechart" describes how to start and to stop Cuechart, to select a chart, to get help, and to draw a chart; (4) "Sample Session" leads a user through a practice session; and (5) "Sample Charts" provides descriptions and examples of bar, line area, error bar, pie, and word charts and the variations of each available with Cuechart.

The *CA-DISSPLA User's Manual, Version 10.5* (RG 99 DS 1001S) provides information on Disspla--a comprehensive system for computer data display. The *Manual* consists of nine major parts for easy reference: Part A, "Introductory Concepts"; Part B, "Enhancements"; Part C, "Three-Dimensional Data Presentation"; Part D, "World Coastline Utilities"; Part E, "Page Layout Utilities"; Part F, "DISSPOP Device Independent Output"; Part G, "Business Features"; Part H, "Contouring"; and Part I, "Dynamics." You can produce simple plots after studying only the material in Part A. You can make further plot enhancements by referring to selected sections in Part B. You can reference various other parts of the *Manual* for more sophisticated plotting applications. This *Manual* supersedes the previous *DISSPLA User's Manual.*

The *CA-DISSPLA Pocket Guide Current With Version 10.0* is a compact reference that describes technical features and lists routine parameters for the Disspla Graphics Software package. It also includes several device-dependent routines as well as DISSPOP postprocessor commands and directives. The organization of the *Guide* is identical to the *CA-DISSPLA User's Manual* (see above).

The *CA-DISSPLA Bulletin of Release Information on Enhancement Fixes, Version 10.5* (UD 99 DS 100BS) describes the new features that have been added and the software difficulties that have been corrected in Disspla Version 10.5. This *Bulletin* updates the *CA-DISSPLA User's Manual, Version 10.0.*

The *CA-DISSPLA Update User's Manual Part F, Version 10.5* (UD 99 DS 105FS) describes the use of Disspla metafiles for producing plots. Metafiles allow you to produce and to reproduce plots on a variety of devices without adjusting or re-executing your Disspla program. You can also retrieve plots from metafiles to use within other Disspla or Tellagraf plots.

The *CA-TELLAGRAF Pocket Guide Current With Version 5.0* is a compact reference for users with a basic understanding of the Tellagraf system. This *Guide* consists of two parts. The first part contains commands for plots and area, bar, and pie charts (along with optional Tellagraf features like page of text and shaded fonts). It also lists common user mistakes. The second part contains sample plots, font illustrations, and descriptions of color systems and defaults.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD JUNE 7, 1988

The Chairperson, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:03 p.m.

Reorganization Plans. Dave Weber (Computing Services) reported on his response to the Management Council's request for recommended changes to the Computing Services administrative structure. Dave has recommended placing "scientific computing" (a phrase as yet undefined) under one of the programmatic Associate Laboratory Directors (ALDs). One reason for this reorganization is to provide state-of-the-art capabilities for scientific computing and to place Computing Services in a more strategic position. Management meetings to develop a plan are underway; at present, the outcome is not clear.

Dave was asked about the rate schedules for FY1989; he replied that the Computing Policy Committee will discuss the topic at its June 10, 1988, meeting.

Computer Security Audit. Jean Troyer (Computing Services) announced that an audit team appointed by the Office of the DOE Inspector General will conduct a survey of computer facility management at the Laboratory. The audit manager has already visited here; he was particularly interested in the protection checklist that Computer Protection Program representatives have submitted to Jean. Starting later this month and continuing for a month, two auditors will be onsite. They will look at protection plans for sensitive computers and computer applications, among other things.[3]

Cray X-MP/14 Update. Doug Engert (Computing Services) reported on the status of the Cray X-MP/14 computer. The Transmission Control Protocol/Internet Protocol (TCP/IP) gateway will be shipped on June 17, 1988. The Laboratory has decided to accept Cray's proposal to trade in our DD-49 disks for a DS-40 disk subsystem that will quadruple our capacity. General purpose equipment (GPE) funds will accommodate, in part, the additional cost (approximately $200,000 per year). Computing Services has successfully tested the connection of an IBM 3380 disk to the Cray; required modifications to the Cray I/O software involved less than 1,000 lines of code so far. Computing Services has suspended the charge associated with WAIT time. They found that the so-called WAIT time measured by the Cray accounting system is not an appropriate basis for charges. Computing Services has no plans to refund prior WAIT time charges. They have also removed an operating system fix that was causing excessive elapsed running times for I/O intensive jobs. (See "Charge for WAIT Time Suspended" in this *Newsletter.)* Computing Services will start running a shell script that scratches $SHORT files more than a day old. They have not made a final decision on what to do about weekends. Users would like to have $SHORT files that are created on the weekends survive until Monday; but, because $SHORT and $SCRATCH share the same resources, there are potential difficulties with $SCRATCH availability. Computing Services is close to providing the capability for submitting MVS jobs from UNICOS without passwords. This feature will simplify the use of the "hardcopy" script. They have not made any recent progress on merging output files with and without carriage control.

---

[3] The Laboratory was later informed that the survey by the audit team has been postponed because of the changes to the administrative structure of Computing Services.

VAX Supercomputer Gateway Testing Plans. Rich Raffenetti (Computing Services) presented an update on the status of the VAX Supercomputer Gateway. The Gateway is up, and users have been testing it. Terminal access is via the **CONNECT ANLVG** command on Laboratory terminal servers and via the **SET HOST ANLVG** command for users on DECnet. The **CINT** command allows users access to a subsystem that permits interactive sessions on the Cray. The **CRAY** command provides access to station commands for batch applications. Online HELP is available, and users can obtain the draft of the *Cray Computer Systems: DEC VAX/VMS Station Reference Manual* (SV-0020) at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). (See "VAX Supercomputer Gateway to the Cray X-MP/14 Available for General Use" in this *Newsletter.)* Computing Services is offering a class on using the Cray X-MP from the VAX Supercomputer Gateway in July 1988. (See "Computing Classes Scheduled for July 1988" in this *Newsletter.)*

Proposed MVS Region Size Reduction. John Volmer (Computing Services) explained a proposal to reduce the maximum region available to users on the IBM 3033 computers. At present, users can run jobs requiring about 8.2 megabytes on the S33A MVS processor and 8.7 megabytes on the S33B processor. These numbers are not fixed; they depend on the amount of job control language (JCL) in the job, file parameters, testing, and the needs of other systems that may be running. With the migration of much scientific computing to the Cray, Computing Services would like to devote more IBM resources to other subsystems (such as CICS, networking, and Computer Services testing). They want to reduce the advertised available user space to 6 megabytes during the week and to provide 8 megabytes of space only by special request on the weekends. Changing the amount of user memory requires restarting the system. Recently, approximately six users per month have been running jobs at more than 6 megabytes. John pointed out that both the Cray (with 24 megabytes) and the VAX 8700 (with 35 megabytes) offer significantly larger memories than the IBM 3033s. There is no fixed schedule for the reduction; Computing Services was asked to keep users well informed as they change the configuration of the system. (See "Maximum MVS Region Size Reduced" in this *Newsletter.)*

Cutover Schedule for VM/SP Release 5 CMS. Rich Preston (Computing Services) announced the schedule for the cutover to the new version of CMS. The CP component has been running since March 1988. TESTCMS has been available to users for some time; on Monday, July 11, 1988, it will become the production version. (See "VM/SP Release 5 CMS Available for Testing" in the June 1988 *Newsletter.)*

The meeting adjourned at 4:05 p.m.

Cy Adams, Acting CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD JUNE 8, 1988

Rodney East (Materials Science) opened the meeting at 11:00 a.m.

Bill Shack (Materials Components) reviewed three Finder replacement utilities for the Macintosh: Powerstation from Software Supply, Disktop 3.0 from CE Software, and Disk Tools 2.0 from Electronic Arts.

Powerstation provides speed and convenience in getting from application to application and from file to file. It allows him to have pertinent documents, applications, utilities, and files in one place.

Disktop 3.0 gives access to files through the desk accessory (DA) route. It searches for a file by using any part of its name and considers the file type and creator. It can rename, move, and delete files and check their "get info" box.

Disk Tools 2.0 does the same thing as Disktop 3.0. Bill uses Disktop 3.0 because he likes its interface better, even though Disk Tools 2.0 is faster. Bill felt that Disktop 3.0 was better than the Find File DA supplied by Apple Computer, because it provided more information.

Bill said that although these utilities are useful, one can pretty much replace them by using Multifinder with 2 megabytes of random-access memory (RAM).

In addition to his discussion of the Finder replacement utilities, Bill gave four reasons why he thinks Diskfit from SuperMac Software is the best hard disk backup utility: (1) Diskfit reclaims the space left by deleted files and reuses it; consequently, it is economical in its use of floppy disks. (2) Diskfit creates ordinary Apple Macintosh files that one can read directly off disks. (3) Diskfit creates an expanded report that gives the location of each file on the backup disks. (4) Diskfit handles large files that require more than one floppy disk and rejoins them easily. Bill also noted that it does a good job duplicating floppy disks for users with only one disk drive. Bill said he keeps one set of backup disks for his applications and two sets of backup disks for his documents.

Scott Shannon (Hewlett-Packard) and Bob Johnson (Farnsworth Computer) demonstrated the Scanjet scanner from Hewlett-Packard. This new flatbed scanner provides up to 16 levels of gray and up to 600 dots per inch. Special hardware and software allow it to run on the Macintosh. Other hardware and software are available so other personal computers can use it. The Scanjet scanner is easy to use. It puts a quick scan of an 8.5-inch by 11-inch page on the Apple Macintosh screen where one can then choose an area to be scanned more carefully. The hardware sets the contrast, brightness, and image type (line art, halftone, or gray scale). Available file formats are TIFF, MacPaint, Clipboard, and PICT. The scanner is also very fast as it uses the Small Computer Systems Interface (SCSI) port on the Apple Macintosh (it takes only 20 seconds to scan an 8.5-inch by 11-inch page at 300 dots per inch). The scanner is fast, easy to use, and competitive in price with other scanners.

Two Special Interest Groups--Excel and Programmers--are now meeting. The Excel Special Interest Group normally meets the third Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. The May and June meetings were canceled; so no meeting notice was sent out. The July meeting will feature the use of function macros in iterative calculations and the conversion of a Fortran program to an Excel worksheet. Please call Ralph Leonard at extension 2-3229 for details. The Programmers Special Interest Group meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. The July meeting will feature comparisons of various programming languages on the Macintosh. Please call John Mattson (Materials Science) at extension-5535 for details.

Macintosh System Version 6.0 is now available on the two Macintosh IIs in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142). Rumor is that some software does not work with System Version 6.0 (for example, Excel and Fourth Dimension). The solution for Excel is to get Excel Version 1.5, which is being shipped. A new version of Fourth Dimension is also coming out and will, no doubt, work with the new Apple Macintosh system. One of the features of System 6.0 is that a user can set a minimum configuration so that the Apple Macintosh Plus and Apple Macintosh SE have more working room within the one megabyte of RAM. A new Apple LaserWriter driver, Version 5.2, has separate options for bitmap and font printing. Also, this driver will print on 11-inch by 17-inch paper.

Rodney East (Materials Science) responded to questions about where the HyperCard stacks are in our public domain library and how to find the useful ones. Rodney indicated the HyperCard stacks are in a separate notebook from the rest of the public domain library. You must ask for the Macintosh Hypercard notebook to see the HyperCard stacks. There are now 46 (800K) disks in the library.

A new official release of Kermit for the Apple Macintosh, Version 0.9(40), will be available through User Services or the Apple Macintosh IIs in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142). For people who have or who are buying Microsoft Word 3.0, Microsoft is giving out a Thesaurus Desk Accessory and a macro program for the Apple Macintosh. The initial response to these two items is that they are very good and work well.

At the July meeting, there will be a demonstration of Trapeze (a spreadsheet with graphics capabilities for the Macintosh) and a presentation of new HyperCard stacks.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing Services), Lee Wagar (Graphic Arts), Jim Lewellen (Computing Services), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:30 p.m.

Ralph Leonard, Macintosh Users Group Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD JUNE 9, 1988

The meeting was opened at 12:15 p.m.

Rich Nixon (Graphic Arts) summarized the status of the Site-Wide Copier Management project. All bids have been reviewed. A few were substantially lower than expected; consequently, Argonne may be in a position to save $1 million or more in the first three years under the new system. The responses will be presented to the Management Council on June 13, 1988. New copiers should be onsite within 30 days after a contract is signed. Ultimately, Materials and Services will be responsible for copier management.

The new system will work as follows. Existing copier leases will not be renewed, and the Management Council will decide on a policy for owned copiers. A single contractor will install new copiers throughout the Laboratory and will keep at least one technician onsite at all times to maintain them. Each division will decide the sites for its copiers and will estimate the anticipated volume (that is, number of copies per month) per copier. The contractor will offer specific types of copiers for various volumes. The monthly fee for each copier will depend on both type and actual volume.

Next, Lee Wagar (Graphic Arts) provided an update on the Texet composition system. Equation training has been completed, and Linda Graf (Graphic Arts), the lead operator, has commented favorably on the usability of the system. At present, Texet is writing new software to solve some serious problems that Adobe Systems created by changing their PostScript fonts to binary. Lee summarized the status of Argonne's typesetting capabilities as follows:

At present, there are three ways to send a file to the typesetter: (1) creating it from scratch in the Texet system; (2) loading it into the Graphic Arts Apple Macintosh that is hard-wired to the typesetter (if it is on an Apple Macintosh disk); and (3) sending it over the NJE network.

Currently, Graphic Arts can do the following: (1) keyboard text and simple charts (for example, flow charts and organizational charts) into the Texet system and send them to the typesetter, (2) transfer ASCII files and some NBI files to Texet via Ethernet, and (3) download some Apple Macintosh files to Texet for merging with non-Macintosh files. Other capabilities that Graphic Arts is working on include transferring larger and more complex NBI files (after that, the next priority will be transferring Mass-11 files) and printing Apple Macintosh files in oversized formats (for example, to generate camera-ready conference papers). The latter capability would save Apple Macintosh and other PostScript users from spending about $17,000 for a Data Products laser printer that can handle 11-inch by 17-inch paper.

Bill Jepsen (Graphic Arts) is considering the lease of a blueprint-copying machine that can copy material on paper up to 36 inches wide, any length. He would like to hear from potential users so that he can assess the demand for this service. Bill also pointed out that July and August are good times to submit printing jobs to Graphic Arts, since those months are usually slow.

The next Graphic Arts Users Group meeting will be held on Thursday, August 11, 1988 (noon in Building 221, Room C-201).

Liz Stefanski, Acting Graphic Arts Users Group Secretary.

WORKLOAD STATISTICS (APRIL 29 THROUGH MAY 30, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,352	1,346	556
Wylbur	1,624	1,617	513
MVS TSO	54	54	20
CICS	1,624	1,617	73
MVS Batch	2,015	2,003	753
VAX/VMS	293	313	146
Cray	156	200	95
All Systems	2,015	2,003	1,007

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	12,287	2,218	1,699	16,204	36,094.6	108.55
Wylbur	10,887	484	764	12,135	10,206.5	10.68
MVS TSO	171	32	0	203	234.2	0.12
CICS	23	0	0	23	0.0	0.69
VAX/VMS	6,715	560	558	7,833	8,944.6	48.34
Cray	538	49	52	639	374.6	1.01
IBM BATCH						
Class U	11,782	2,069	1,622	15,473	n.a.	47.04
Class W	18,811	1,935	1,663	22,409	n.a.	158.78
Class X	13	1,220	159	1,392	n.a.	110.76
Class Y	0	1	528	592	n.a.	62.95
Class Z	0	0	220	220	n.a.	42.19
Nonmain	13,422	1,238	1,310	15,970	n.a.	0.00
Total	44,028	6,463	5,502	55,993	n.a.	421.72
CRAY BATCH						
Prime	5,232	396	479	6,107	n.a.	111.48
Night	6	347	9	362	n.a.	56.12
Weekend	0	0	234	234	n.a.	41.97
Standby	0	88	111	199	n.a.	90.11
Total	5,238	831	833	6,902	n.a.	299.68
VMS BATCH						
Prime	1,175	229	130	1,534	n.a.	106.56
Night	7	76	39	122	n.a.	23.96
Weekend	2	0	30	32	n.a.	10.52
Standby	0	0	0	0	n.a.	0.00
Total	1,184	305	199	1,688	n.a.	141.04

INPUT/OUTPUT

Lines Printed	
Local	58,744,109
Remote	51,223,172
Fiche	34,670,579
Cards Punched-Local Only	24,106
Tape Mounts	8,676
Microfiche Developed	4,357
Microfiche Frames Developed	773,022

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	0	0
Versatec Jobs	205	1,374
Matrix 35mm Color	307	1,501
Matrix-8 x 10	15	19
Matrix-negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	57	465
35mm Black/White/Sprocketed	9	72
35mm Color	1	7
16mm Black/White/Sprocketed	11	5,681
16mm Color	1	215
105mm Black/White/Unsprocketed	0	0

DATA MANAGEMENT

Tapes Stored	22,131
New Tapes Saved	856
Tapes Released	769
Datasets Exported to Tape	2,926
Datasets Imported from Tape	527

* n.a. = not applicable

MVS BATCH SCHEDULING PERFORMANCE FROM APRIL 29 AT 7:00 A.M. TO MAY 30, 1988, AT 7:00 A.M.

	STARTED IN PRIME SHIFT	*STARTED IN OVERNIGHT SHIFT*	*STARTED IN WEEKEND SHIFT*	*TOTAL OF ALL SHIFTS*
CLASS U EXPEDITED BATCH				
Number Started	11,782	2,069	1,622	15,473
Number Started in 12 Minutes	11,216	1,447	1,404	14,067
Percent Started in 12 Minutes	95.2	69.9	86.6	90.9
25th Percentile Start Delay (Minutes)	0.1	0.1	0.1	0.1
50th Percentile Start Delay (Minutes)	0.1	0.4	0.1	0.1
75th Percentile Start Delay (Minutes)	0.3	19.5	0.7	0.4
90th Percentile Start Delay (Minutes)	3.5	46.2	20.0	9.6
99th Percentile Start Delay (Minutes)	117.8	230.1	225.2	162.7
CLASS W REGULAR BATCH				
Number Started	18,811	1,935	1,663	22,409
Number Started in 2 Hours	18,259	1,703	1,651	21,613
Percent Started in 2 Hours	97.1	88.0	99.3	96.4
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	0.3	0.0	0.0
90th Percentile Start Delay (Hours)	0.2	3.0	0.0	0.2
99th Percentile Start Delay (Hours)	4.3	16.7	1.1	5.3
CLASS X DEFERRED OVERNIGHT BATCH				
Number Started	13	1,220	159	1,392
Number Started in 15 Hours	13	1,219	159	1,391
Percent Started in 15 Hours	100.0	99.9	100.0	99.9
25th Percentile Start Delay (Hours)	5.4	2.4	0.0	1.7
50th Percentile Start Delay (Hours)	6.9	4.6	0.0	3.9
75th Percentile Start Delay (Hours)	9.5	9.1	0.0	8.5
90th Percentile Start Delay (Hours)	9.6	11.8	0.0	11.7
99th Percentile Start Delay (Hours)	9.6	13.7	1.5	13.6
CLASS Y DEFERRED WEEKEND BATCH				
Number Started	0	1	528	529
25th Percentile Start Delay (Hours)	0.0	80.9	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	80.9	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	80.9	15.5	15.6
90th Percentile Start Delay (Hours)	0.0	80.9	20.9	20.9
99th Percentile Start Delay (Hours)	0.0	80.9	81.6	83.8
CLASS Z LIMITED DEFERRED WEEKEND BATCH				
Number Started	0	0	220	220
25th Percentile Start Delay (Hours)	0.0	0.0	37.0	37.0
50th Percentile Start Delay (Hours)	0.0	0.0	41.0	41.0
75th Percentile Start Delay (Hours)	0.0	0.0	44.9	44.9
90th Percentile Start Delay (Hours)	0.0	0.0	46.4	46.4
99th Percentile Start Delay (Hours)	0.0	0.0	49.4	49.4
TOTAL OF ALL CLASSES				
Number Started	30,606	5,225	4,192	40,023

AVAILABILITY STATISTICS, BY MACHINE (APRIL 29 THROUGH MAY 30, 1988)

	Monthly Totals	*Scheduled*			*Unscheduled*		
		Hdware	*Sftware*	*Other*	*Hdware*	*Sftware*	*Other*
YELLOW IBM 3033							
All Shifts							
Interruptions	16	7	2		4	1	2
Hrs Unavailable	14.11	5.51	1.58		1.06	0.15	5.80
MTF/Unscheduled	107.69				188.47	753.88	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10	5	2		2		1
Hrs Unavailable	7.31	4.63	1.58		0.60		0.50
MTF/Unscheduled	85.56				128.34		
RED IBM 3033							
All Shifts							
Interruptions	8	3	2			2	1
Hrs Unavailable	10.65	4.18	0.23			0.31	5.91
MTF/Unscheduled	252.45					378.67	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6	3	1			2	
Hrs Unavailable	4.60	4.18	0.10			0.31	
MTF/Unscheduled	129.70					129.70	

AVAILABILITY STATISTICS, BY SERVICE (APRIL 29 THROUGH MAY 30, 1988)

	Monthly Totals	*Scheduled*			*Unscheduled*		
		Hdware	*Sftware*	*Other*	*Hdware*	*Sftware*	*Other*
CMS							
All Shifts							
Interruptions	8	3	2			2	1
Hrs Unavailable	10.65	4.18	0.23			0.31	5.91
MTF/Unscheduled	252.45					378.67	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6	3	1			2	
Hrs Unavailable	4.60	4.18	0.10			0.31	
MTF/Unscheduled	129.70					129.70	
WYLBUR							
All Shifts							
Interruptions	27	8	4		6	6	3
Hrs Unavailable	20.08	7.83	2.50		2.23	0.91	6.60
MTF/Unscheduled	49.86				124.65	124.65	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	20	5	4		4	5	2
Hrs Unavailable	11.01	5.06	2.50		1.56	0.70	1.18
MTF/Unscheduled	22.99				63.24	50.59	
MVS TSO							
All Shifts							
Interruptions	19	7	2		6	1	3
Hrs Unavailable	19.08	8.31	1.71		2.23	0.21	6.60
MTF/Unscheduled	74.89				124.81	748.91	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	5	2		4		2
Hrs Unavailable	9.68	5.21	1.71		1.56		1.18
MTF/Unscheduled	42.38				63.57		
JES3							
All Shifts							
Interruptions	19	8	2		5	2	2
Hrs Unavailable	15.16	5.98	1.58		1.43	0.36	5.80
MTF/Unscheduled	83.64				150.56	376.41	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	11	5	2		2	1	1
Hrs Unavailable	7.66	4.76	1.58		0.60	0.21	0.50
MTF/Unscheduled	64.08				128.16	256.33	
CICS							
All Shifts							
Interruptions	3				2		1
Hrs Unavailable	1.25				0.66		0.58
MTF/Unscheduled	255.58				383.37		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3				2		1
Hrs Unavailable	1.25				0.66		0.58
MTF/Unscheduled	87.58				131.37		
VAX/VMS							
All Shifts							
Interruptions	10	1	2			4	3
Hrs Unavailable	7.66	0.88	1.53			1.33	3.91
MTF/Unscheduled	108.61					190.08	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9	1	2			4	2
Hrs Unavailable	6.25	0.88	1.53			1.33	2.50
MTF/Unscheduled	42.95					64.43	
CRAY							
All Shifts							
Interruptions	22	9	8		1	2	2
Hrs Unavailable	35.11	17.06	6.66		8.15	0.30	2.93
MTF/Unscheduled	146.57				732.88	366.44	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	11	1	8			1	1
Hrs Unavailable	7.83	0.91	6.66			0.13	0.11
MTF/Unscheduled	128.08					256.16	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (APRIL 29 THROUGH MAY 30, 1988)

COST	CENTER	BATCH	WYLBUR	CMS	MVS TSO	VAX/VMS	CRAY	DISK	OTHER	TOTAL
102	EBR-AW	1,364	521	60			378	1,969	440	4,732
104	EBR-IL	1,179	659	1,598				2,769	1,624	7,829
105	MSD	1,832	557	734		5,531	16,024	3,799	5,046	33,524
107	CMT	4,160	475	1,003		15		1,502	14,695	21,850
109	PHY	359	907	1,304		1,316	4,634	3,765	1,799	14,084
110	BIM	1,238	226	2,561	13	1,324	1,265	5,302	763	12,692
112	RAS	9,485	4,372	987		223	4,219	9,684	4,482	33,453
113	REE-SRF	43	3					10	20	78
114	MCT	5,488	1,201	3,054		2,686	104	4,900	2,528	19,960
115	ENG-IL	765	187	908		26		1,296	576	3,758
116	AP-IL	26,253	8,659	4,870	19	1,270	20,189	27,939	4,783	93,983
117	AP-AW	4,074	552	0			2,669	7,943	160	15,398
118	REE-AW	1,560	118	256		1		2,056	69	4,060
119	AL-AW								24	24
120	CHM	430	68	249	52	4,129	1,100	2,524	2,041	10,593
130	APS	189	10	143		2,663	1	1,973	140	5,119
136	PNS	67	5	36		6		143	459	716
137	HEP	310	18	283	178	695	1,611	2,113	1,312	6,519
139	DEP	315	208	599				1,343	802	3,267
143	SSD-EL	142	13	78		14		121	228	596
145	MCS	50	20	239		16	612	870	2,876	4,683
148	HD	334	11	167				923	148	1,583
149	ER	896	216	1,054		17	76	2,742	536	5,536
150	SPM	112	0	71				153	8	343
161	TIS	1,771	58	10		5		755	304	2,902
171	RPD	218	8					108	91	426
174	EEP	216	33	1				73	33	357
178	FP	98	6	29				387	55	575
190	EES	14,913	3,198	996	10	10,595	4	18,716	12,685	61,117
197	IEP	519	42	397				158	90	1,206
201	OTD	148	8	269				384	324	1,133
202	OPS			16				46	104	166
210	SSD-CS	70	12	166				61	50	359
211	ENG-DE							137	24	161
216	SSD	154	14	32				182	73	455
222	SSD-LF								24	24
232	SEC	13		24				615	48	700
234	SSD-HP	16	2	453				266	147	884
235	SSD-OHS	535	55	104				599	125	1,417
236	OHS-FD								24	24
245	SSD-CSD	3,663	275	1,450				6,942	2,622	14,952
246	TIS-NESC	40	5	18				113	695	871
247	SSD-COM	461	27	925				1,260	549	3,222
260	SSD-GA	127		33				195	984	1,340
269	CMT-AC	94	8	41				106	25	274
271	OTD-RPA	515	161	115				234	226	1,251
272	APS			1				20	0	21
273	OTD-PR	23	2	86				53	31	195
274	OTD-EET	75	1	34				138	54	301
275	OPA	84	1	768				288	36	1,177
276	OPA-MP	25	2	10				54	31	120
315	SSD-MS	38	7	2,076				1,571	345	4,036
316	PFS-VM	37						59	64	161
317	PFS-DR	58	2					20	24	104
319	SSD-TVL			203				13	24	240
322	SSD-PRO							65	35	100
333	QAD-PQ	42	9					115	59	225
336	QAD-IN	17								17
400	CR-CTR	8,222	592	837				8,875	1,739	20,265
401	CR-ACT	6,386	646	344				9,840	431	17,646
402	OCF-DE								100	100
403	CR-BUD								24	24
410	HR	3,128	109	10,771				4,821	1,004	19,832
412	AAP			40				104	109	254
501	PFS-BM	17						46	62	125
502	PFS-IN								24	24
503	PFS-GR								24	24
504	PFS-CU								24	24
505	PFS-WMO			45				65	49	159
506	PFS-PMO	527	17	66				232	64	906
510	PFS-US								26	26
512	PFS-FPE	535	101	48				726	93	1,503
530	AW-SMO	115	4	5				52	25	202
531	AW-HR		6	58				33	24	121
532	AW-SPM	721	3	661	109			540	172	2,206
533	AW-ACT								24	24
534	AW-PUR							20	24	44
535	AW-SEC							33	24	57
536	AW-SS	17	3					278	25	323
537	AW-IS								24	24
538	AW-MHD		8	14				61	24	107
550	AW-CAS	200	53	72				131	24	481
551	AW-RM							13	24	37
554	AW-MS		2	14				35	24	75
556	AW-SE		1	89				94	24	208
557	AW-PS	2	2	137				73	24	238
558	AW-PS							6		6
559	AW-FS								24	24
561	QAD-AW							15	25	39
563	AW-TRP								24	24
750	OUTSIDE	847	467					709	156	2,179
751	FNAL	4,508	0	50				1,454	415	6,428
752	NAVY	3,504	779	825				6,716	3,992	15,816
753	METC			2				39	780	822
754	DOE-CH							6	117	123
757	COLLABOR	3	11	278				455	517	1,264
TOTAL	CHARGE	$113,347	$25,751	$42,864	$381	$30,531	$52,886	$155,043	$75,870	$496,673
245	SSD-CSD	10,919	1,403	88,870	414	5,685	2,501	29,118	34,404	173,313
800	CSD-OPS	25,462	768	26,372	24	3,922	233	3,599	6,251	66,632
TOTAL	NO CHARGE	$36,382	$2,171	$115,241	$438	$9,608	$2,734	$32,717	$40,656	$239,946

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 312)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	6-7463	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CMS, Wylbur, and TSO Interactive Computing Services			
300 Bits Per Second	2-7603	6-7005	972-7603
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	6-7005	972-7612
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	6-7005	972-2212
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
X.25 Terminal Multiplexor	2-2525	n.a.	n.a.
IBM 3270 Protocol Converter	2-3270	n.a.	972-3270
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	6-8700	972-8700
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
ARPAnet Data Communications Network			
1,200 to 2,400 Bits Per Second Full-Duplex	2-7490	n.a.	972-7490

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**	**ARPAnet**
Monday to Thursday	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

* Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing Services will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing Services will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

SUBJECT INDEX FOR CALENDAR YEAR 1988 (7/88)

hese entries refer to *Newsletters* published in 1988. All previous *Newsletters* are indexed in the December 1987 issue of the *ewsletter* or use the LOOKUP command in CMS, Wylbur, and distributed VAX computers.

- ccount aliases
  - VAX NJE users may specify for MVS batch jobs ... 2518
- dvanced Computing Research Facility (ACRF) ... 2513
  - parallel computing class ... 2467, 2478, 2487, 2499, 2514, 2525
  - programming techniques seminar ... 2514, 2525
  - two-week Institute in parallel computing ... 2525
  - update ... 2478
- dvanced Computing Seminars ... 2489, 2500
- nswer/DB
  - computer-based training course available in CMS ... 2479
- pple LaserWriter
  - upgrade kit available ... 2487
- pplication System
  - Project Management Office evaluation ... 2497
- RPAnet
  - BITnet gateway changes ... 2458
- synchronous Data Interface (ADI)
  - use MKO with ... 2531

- iomedical Computer Programs (BMDP)
  - BMDP-87 ... 2480
- ITnet
  - discussion groups available ... 2532
  - network ... 2467, 2493, 2518
- LOWUP
  - available on color plotter ... 2489

- AI (Computer-aided instruction)
  - available for Datatrieve ... 2519
  - available for EVE ... 2519
- alComp
  - last pen plotter decommissioned ... 2503
- alComp 5835XP color plotter
  - BLOWUP feature available ... 2489
  - STACK3 feature available ... 2489
- AL580
  - old CalComp plotter decommissioned ... 2503
- AL780
  - old CalComp plotter decommissioned ... 2503
- AL936
  - old CalComp plotter decommissioned ... 2503
- BT ... (see Computer-based training)
- CICS
  - new application menu screen ... 2526
  - new screen planned ... 2487
- CMS
  - Disspla 10.5 available for testing ... 2502
  - PL/I Optimizing Compiler available for testing ... 2500
  - Speakeasy IV Version Epsilon available for testing ... 2526
  - Tellagraf Version 6.1 available for testing ... 2502
  - upgrade to Release 5 ... 2480
  - VM/SP Release 5 available for testing ... 2515
  - Waterloo C (Version 3.0) available for testing ... 2515
- CMS execs
  - TESTCMS ... 2480
- Compilers
  - Cray CFT77 Fortran compiler now available ... 2501
- Computer Output and Document Distribution Area (Building 221)
  - renovation of ... 2482
- Computer Users Group
  - current officers and subcommittees ... 2506
- Computer-based training (CBT)
  - courses ... 2479
  - Language Sensitive Editor computer-based training available ... 2491
- Computing Center
  - 1988 holiday schedule ... 2488
- Computing Center service schedule
  - Fourth of July 1988 holiday ... 2513
  - Memorial Day 1988 holiday ... 2499
- Computing classes scheduled for April 1988 ... 2488
- Computing classes scheduled for July 1988 ... 2525
- Computing classes scheduled for June and July 1988 ... 2514
- Computing classes scheduled for June 1988 ... 2499
- Connection Machine
  - acquired by Mathematics and Computer Science Division ... 2513
- Cray UNICOS
  - standby batch service increased to weeknights ... 2501

- Cray X-MP/14 high performance computer
  - Disspla Version 10.0 installed in UNICOS ... 2501
  - increased UNICOS disk space ... 2528
  - operating schedules for UNICOS ... 2465
  - rates approved ... 2466
  - TCP/IP access for testing ... 2527
  - test of IBM disks attached to ... 2529
  - UNICOS 3.0 available ... 2465
  - update ... 2453, 2465
  - VAX/VMS station available for general use ... 2528
  - WAIT time charge suspended ... 2528
- CRWTH ... 2479
- Cuechart
  - Version 2.1 ... 2502

- Datatrieve computer-based instruction available ... 2519
- Disks
  - attached to Cray X-MP/14 ... 2529
- Disspla
  - Version 10.0 installed in Cray UNICOS ... 2501
- Disspla 10.5
  - available for user testing in CMS ... 2502
  - available for user testing in MVS ... 2529
- Distributed Array Processor (DAP) ... 2478
- Documentation
  - recently updated and published ... 2458, 2480, 2492, 2505, 2537
  - UNICOS document available ... 2518

- Electronic mail
  - discussion groups available on BITnet ... 2532
- Electronic publishing
  - Texet ... 2478
- EVE computer-based instruction available ... 2519
- Expert systems
  - course in Prolog and basic tools ... 2453
- Ezpert
  - Version 5.5 installed ... 2497

- FETCH command failures ... 2498
- Film developing schedule 7/88 ... 2529
- Focus
  - computer-based training courses available in CMS ... 2479

- Graphics
  - BLOWUP and STACK3 features available on color plotter ... 2489
  - CalComp pen plotter (last one) decommissioned ... 2503
  - Disspla 10.0 installed in Cray UNICOS ... 2501
  - Disspla 10.5 available for testing ... 2502, 2529
  - G1DATA conversion to CA/ISSCO metafiles available ... 2503
  - metafile conversion to CA/ISSCO available ... 2503
  - negatives available from Matrix camera ... 2489
  - SuperImage software for personal computers ... 2456
  - Tellagraf 6.1 available for testing ... 2502
  - Versatec decommissioning planned ... 2503
  - viewgraphs available from Matrix camera ... 2489
- G1DATA
  - metafile conversion to CA/ISSCO available ... 2503

- Hydra Protocol Converter
  - available for testing ... 2532
  - available offsite at 2400 baud ... 2490
  - new terminal selection menu ... 2532

- IBM Personal Computer
  - recommended Ethernet boards for ... 2537
  - SuperImage graphics software ... 2456
- IBM 3033
  - replacement planning initiated ... 2453
  - task force membership ... 2453
- ICUSER
  - computer-based training course available in CMS ... 2479
- ISPF
  - computer-based training course available in CMS ... 2479
- Itel disk equipment
  - removal of ... 2456

- Language Sensitive Editor
  - available on the VAX 8700 computer ... 2491
  - computer-based training available ... 2491
- LaTeX now available on VAX 8700 computer ... 2535
- Local area network (LAN) Ethernet
  - reliability improved ... 2490

- Machine Keyboard Origination (MKO)
  - use with ADIs ... 2531
- MACSYMA available on the VAX 8700 ... 2534
- Materials Catalog (MCAT) ... 2500
- Matrix camera
  - viewgraph development schedule ... 2529
  - viewgraphs and negatives available ... 2489
- Multiprocessing ... 2478, 2513

MVS
  maximum region size reduced ... 2531
  VAX NJE users may specify account alias for batch jobs ... 2518

NAG library
  G floating-point NAG library available on VAX 8700 ... 2504
Negative film
  available from Matrix camera ... 2489

PBX
  acceptance ... 2531
Personal computers
  OS/2 considerations ... 2457
  SuperImage graphics software ... 2456
Phased disk replacement
  elimination of TSPERM ... 2456
  elimination of TSP60n disks ... 2456
PL/I
  Optimizing Compiler available for testing in CMS ... 2500
Project Management System (PMS IV) ... 2497
Protection
  computer protection ... 2454

RACF
  installation procedure ... 2454
  passwords stored in encoded format ... 2519

Service rates
  Cray X-MP/14 rates approved ... 2466
  surcharge to non-ANL users increased ... 2487, 2499
Service Schedule
  Computing Center ... 2465
Services (computer maintenance)
  available from Electronics ... 2498
SPCAL580
  old CalComp plotter decommissioned ... 2503
SPCAL780
  old CalComp plotter decommissioned ... 2503
SPCAL936
  old CalComp plotter decommissioned ... 2503
Speakeasy
  IV Version Epsilon available for testing in CMS ... 2526
SPFVERS11
  Versatec decommissioning planned ... 2503
SQL
  computer-based training courses available in CMS ... 2479
STORECAT ... 2500
Stores Catalog ... 2500
SuperImage graphics software ... 2456, 2490

Tape
  available in UNICOS ... 2517
  releasing unneeded ... 2513
TCP/IP
  Cray UNICOS testing ... 2527
Tellagraf
  Version 6.1 available for testing in CMS ... 2502
Terminals
  Hydra Protocol Converter available for testing ... 2532
TESTCMS execs ... 2480
TeX now available on VAX 8700 computer ... 2535
Texet electronic publishing system ... 2478
TSO
  computer-based training course available in CMS ... 2479
TSPERM
  datasets moved to PERM ... 2456
  no longer defined ... 2456
  removed through phased disk replacement ... 2456

UNICOS
  classes ... 2465
  Cray CFT77 Fortran compiler now available ... 2501
  documentation available ... 2518
  operating schedules on Cray ... 2465
  tapes available ... 2517
  update ... 2477
UNICOS 3.0
  available on Cray X-MP/14 ... 2465
UNICOS 3.0.11
  in production ... 2500
Unix
  available on VAX 8700 ... 2470
USERDETAIL command
  available on VAX 8700 ... 2473

VAX Supercomputer Gateway
  available for general use ... 2528
VAX Supercomputer Gateway testing ... 2516
VAX 8700 computer
  G Floating-point NAG library available ... 2504
  Language Sensitive Editor available ... 2491

- VAX 8700 computer system
  - computer-based instruction
    - available for EVE and Datatrieve ... 2519
  - group manager role created ... 2505
  - LaTeX now available ... 2535
  - MACSYMA available on ... 2534
  - online Desk Calculator ... 2535
  - remote printer service available ... 2534
  - software upgrades ... 2473
  - TeX now available ... 2535
  - Unix available on ... 2470
  - USERDETAIL command available on ... 2473
- VAX/VMS
  - command line editing ... 2468, 2469
  - command line recall ... 2469
  - print capability extended ... 2491
  - software distribution kit sharing procedure extended ... 2490
  - users may submit account alias for MVS batch jobs ... 2518
- Versatec
  - planned decommissioning ... 2503
- VERS11
  - Versatec decommissioning planned ... 2503
- Viewgraphs
  - available from Matrix camera ... 2489
  - schedule ... 2529
- Virtual Machine System Product Release 5 (VM/SP5)
  - available for testing ... 2515
- VM/SP5 ... (see Virtual Machine System Product Release 5)

- WAIT time
  - on Cray, charge for suspended ... 2528
- Waterloo C
  - version 3.0 available for testing in CMS ... 2515
- Wylbur
  - fetch failures ... 2498

- X.25
  - expanded access ... 2490

Argonne National Laboratory
Computing Services
July 1988

COMPUTING CENTER CLASSES

Computing Services is offering three computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the Computing Services Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. Computing Services will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

USING VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.

Length of Class: One 3-hour session

Date and Time: July 13, 1988 (Wednesday), 9:00 a.m. to noon

Location: Building 221, Room A-216

Instructor: Diane Lark

USING THE CRAY X-MP FROM THE VAX SUPERCOMPUTER GATEWAY (RESCHEDULED)

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the VAX station.

Prerequisite: "Introduction to UNICOS and Shell Programming" class or equivalent experience with Unix.

Length of Class: Two 3-hour sessions

Dates and Times: July 14, 1988 (Thursday), 9:00 a.m. to noon
July 15, 1988 (Friday), 9:00 a.m. to noon

Location: Building 221, Room A-261

Suggested Reading: *DEC VAX/VMS Station Reference Manual* (SV-0020)
Guide to UNICOS at ANL (ANL/TM 460)

Instructor: Tony Kubalak from Cray Research, Inc.

CRAY X-MP ARCHITECTURE AND VECTORIZATION TECHNIQUES

Goals: To learn to optimize Fortran programs on the Cray X-MP/14 high performance computer. Topics include Cray X-MP architecture, vectorization, optimization, programming techniques, and code examples.

Length of Class: Two 3-hour sessions

Date and Time: July 20, 1988 (Wednesday), 1:30 p.m. to 4:30 p.m.
July 21, 1988 (Thursday), 1:30 p.m. to 4:30 p.m.
July 22, 1988 (Friday), 1:30 p.m. to 4:30 p.m. (optional workshop)

Location: Building 221, Room A-216

Instructors: Dave Leibfritz, Al Hinds

NOTE: An optional follow-up workshop is available to users who want to work on their code with the assistance of the instructor.

COMPUTER-BASED TRAINING COURSES

Computing Services currently offers 25 different computer-based training courses in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

General Data Processing Courses	
DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center
Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
PROFS Courses	
PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
SORTMRG	Using SORT/MERGE Utilities
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Course	
TSOUSE	Using TSO
SPFUSE	Using ISPF

Miscellaneous Courses
(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

☆ U.S. GOVERNMENT PRINTING OFFICE 1988—542-143/800

8615:
8

OSITORY
JAN 12 1989
UNIVERSIT OF ILLINOIS
AT URBANA-CHAMPAIGN

ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 19 NUMBER 8 AUGUST 1988

COMPUTING COMMENTS

We're Now the Computing and Telecommunications Division! 2543
Assistance Available through Electronic Mail 2543
ANSYS To Move from MVS Batch to VAX 8700 Computer 2543
Computing Center Labor Day Holiday Schedule 2544
Computing Classes Scheduled for September 1988 2544

CMS NEWS

PROFS Version 2 Release 2 Installation Scheduled 2544
CMS Kermit Upgrade 2545

CRAY NEWS

New CFT Compiler Available for Testing in UNICOS 2545
Managing New and Old Program Products in UNICOS 2545

GRAPHICS NEWS

Obtaining Hardcopy Output from CGM Metafiles 2546
CGM Graphics Capabilities Available for Testing in CMS and MVS 2547

MVS NEWS

Librarian 3.7 with LIBAUDIT Available for Testing in MVS 2548
New Version of DFSORT Available for Testing in MVS Batch 2549
PL/I Optimizing Compiler Version 1.5.1 Is Available for Testing in MVS Batch 2549

TELECOMMUNICATIONS NEWS

New Additions to BITnet University Network 2550

VAX/VMS NEWS

Central VAX Cluster Upgraded to VMS Version 4.7 2550
NAG Mark 11 Library To Be Removed from VAX 8700 2551

BITS & BYTES

Recently Updated and Published Documents 2551

USERS GROUP HIGHLIGHTS

Minutes of Computer Users Group Meeting Held July 5, 1988 2552
Minutes of Macintosh Users Group Meeting Held July 13, 1988 2554

COMPUTING CENTER STATISTICS

COMPUTING CENTER TELEPHONE NUMBERS AND SERVICE SCHEDULE

SUBJECT INDEX

APPENDIX

Computing Center Classes

COMPUTING AND TELECOMMUNICATIONS DIVISION

Argonne National Laboratory
Building 221
Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Director, Computing and Telecommunications	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Networks	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Telecommunications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Information Systems	Diane Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource and Plant Services Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Material Systems	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Information Technology Resources Planning	Mike Boxberger	A245	2-5639	B34540 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Rich Slade	B139	2-7674	B32848 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 3.0, a DEC VAX-11/750, a DEC VAX 8700, a DEC VAX 8250, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger and Lynne Brooks with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

WE'RE NOW THE COMPUTING AND TELECOMMUNICATIONS DIVISION!

On July 11, 1988, Dr. Alan Schriesheim, Laboratory Director, announced the formation of the Computing and Telecommunications Division (CTD), which will have responsibility for both scientific and administrative computing and telecommunications at the Laboratory. In addition to the activities of the former Computing Services organization, our new division will pursue research and development opportunities in the rapidly evolving technologies in computing and telecommunications. We expect this expanded charter to enhance our position for major new computational science initiatives, including the proposed Center for Energy Research Computation (CERC). It will also enhance the Laboratory's activities in technology transfer to the industrial and university communities in scientific computing. Dr. David Weber, who has been the Manager of Computing Services, will serve as the Director of the Computing and Telecommunications Division, reporting to Dr. Frank Y. Fradin, Associate Laboratory Director for Physical Research.

ASSISTANCE AVAILABLE THROUGH ELECTRONIC MAIL

Have you ever wanted to report a bug or other difficulty to the User Services consultants but didn't because you were working late (or on a weekend), didn't have access to a telephone, or got a busy signal on extension 2-5405? In these instances, electronic mail may be an effective way to report difficulties and to obtain assistance.

During each work day, a consultant periodically checks incoming electronic mail and tries to answer questions as soon as possible. The consultants try to respond to overnight mail on the next morning and to mail received during the day on that same day. If the question or problem is complex, a consultant may need to contact or to see you for additional information. Unless you indicate otherwise, a consultant will send a note back to you at the computer where you originated your electronic mail.

User Services aims to make electronic mail requests convenient from computer systems with access to Laboratory networks. Table 1 depicts the appropriate commands to send mail to User Services consultants. All consultant electronic mail is actually forwarded to userid CONSULT at the ANLVM computer.

Table 1: Mail Commands

CMS	`NOTE CONSULT`
BITnet CMS Systems	`NOTE CONSULT at ANLVM`
PROFS in CMS	`PROFS NOTE CONSULT`
ANL TCP-IP Systems	`MAIL CONSULT@ANLVM`
VAX 8700	`MAIL CONSULT`
VAX Systems on Lab-Wide DECnet	`MAIL ANLVM::CONSULT`
Wylbur	`DO CONSULT`

ANSYS TO MOVE FROM MVS BATCH TO VAX 8700 COMPUTER

In response to requests from Argonne users of the ANSYS structural analysis program, the Computing and Telecommunications Division (CTD) will install ANSYS 4.3A on the VAX 8700 computer. Using ANSYS in the VAX VMS environment will enable new capabilities, including interactive preparation of input data and interactive processing of ANSYS graphical output. The *ANSYS® Execution Guide (ANSYS User's Manual -- Appendix S) Revision 4.3A VAX/VMS Version* is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). We will order ANSYS reference manuals only on request.

ANSYS 4.3A should be available for general use in VMS by September 1988. Users interested in becoming early testers for VMS ANSYS should contact the User Services consultants at extension 2-5405.

The MVS batch version of ANSYS will expire, and we will not renew its license. Users whose work may be adversely affected should contact the User Services Manager at extension 2-7419 to discuss their needs.

For more information about the cutover to ANSYS on the VAX 8700, look for the September 1988 *Newsletter*.

COMPUTING CENTER LABOR DAY HOLIDAY SCHEDULE

Computers will be *attended* during the Labor Day weekend and holiday, but only by a single operator from Saturday, September 3, 1988, at 12:30 a.m. until Tuesday, September 6, 1988, at 12:30 a.m. Throughout this 72-hour period, all the interactive systems and batch services will be operational on the same basis as they are on weekend nights when only one operator is available. During this holiday period, all MVS job classes and all VMS and UNICOS job queues will be eligible to run. Weekend computing rates will prevail from Saturday, September 3, 1988, at 12:01 a.m. until Tuesday, September 6, 1988, at 7:00 a.m.

Users who have special requirements for service beyond what has been scheduled should call Computer Operations (extension 2-5437) to discuss their requirements in advance.

COMPUTING CLASSES SCHEDULED FOR SEPTEMBER 1988

During September 1988, the Computing and Telecommunications Division will offer one demonstration and four classes. The schedule is appended to this *Newsletter*. To register, call or visit the Computing and Telecommunications Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. Computing and Telecommunications will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, and computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and to use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and to link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Introduction to Wylbur for Text Editing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and to modify programs, data, and text; to submit MVS and UNICOS batch jobs; and to review MVS and UNICOS batch output.

Using VAX/VMS (one 3-hour session) will acquaint VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

CMS NEWS

PROFS VERSION 2 RELEASE 2 INSTALLATION SCHEDULED

On Saturday, August 20, 1988, Computing and Telecommunications plans to install the newest version of PROFS (PROFS Version 2 Release 2). This version of PROFS will eliminate the current trouble reviewing the in-basket from the PROFS main menu, resulting from an incompatibility with CMS Release 5. This newest version will allow users to imbed a PROFS calendar in a PROFS note. Thus, you can more easily send calendars to non-PROFS users at the Laboratory or on BITnet. Users may also notice minor improvements to the PROFS menus.

Besides bringing our current software up to date, the installation of PROFS Version 2 Release

2 will allow Computing and Telecommunications to begin testing PROFS Extended Mail. With PROFS Extended Mail, you will be able to use the CMS NAMES file along with the PROFS nickname file for sending electronic mail. PROFS Extended Mail also will extend the full range of PROFS electronic mail functions for sending and receiving notes from other networks that are connected via gateways (such as ARPAnet and MFEnet).

Computing and Telecommunications recommends that you keep old copies of PROFS documentation. You can supplement your current PROFS documentation with the online HELP provided on all the PROFS menus.

Unlike our other program products, we cannot make the test version of PROFS available to the user community (prior to the cutover date), because we cannot adequately protect user information in calendars and documents.

Please report any difficulties with the new version of PROFS to the User Services consultants at extension 2-5405, or send an electronic note to CONSULT.

CMS KERMIT UPGRADE

A modified version of CMS Kermit correcting several difficulties experienced at Argonne is now the production version. The modified Kermit corrects SERVER mode and response difficulties that many outside users encountered. The SERVER mode difficulty would previously show up on every other file transfer. Computing and Telecommunications has corrected the X.25 response difficulty by revising CMS Kermit to send an XON with each prompt.

To decrease file transfer times, we have increased the default receive packet size in CMS Kermit to 94 bytes from 60 bytes. People who use microcomputer versions of Kermit that allow packets greater than 94 bytes can benefit from further increases to the packet size. A packet size of about 250 bytes is most efficient at 9600 or 19200 baud. To increase the packet size in your PC version of Kermit, enter:

`SET SEND PACKET 250` (to upload to CMS)
`SET REC PACKET 250` (to download from CMS)

The actual syntax for the above settings may differ on some computers.

Then enter (in CMS Kermit):

`SET REC PACKET 250` (to upload to CMS)

CRAY NEWS

NEW CFT COMPILER AVAILABLE FOR TESTING IN UNICOS

On Monday, August 29, 1988, the new CFT Fortran compiler (Level 115, Bug Fix 3) will replace the current CFT compiler in production. The new version of CFT fixes a bug (discovered at Argonne) where, under certain circumstances, CFT replaced a one line DO loop with a library routine that should not have been replaced.

Prior to Monday, August 29, 1988, you can invoke the new CFT compiler with the following UNICOS statement:

```
/new/cft -dp -eLS prog.f
```

where "prog.f" is your Fortran program. Computing and Telecommunications encourages users to test the new version and to report any difficulties to the User Services consultants at extension 2-5405.

MANAGING NEW AND OLD PROGRAM PRODUCTS IN UNICOS

To minimize unanticipated disruptions when changes to UNICOS software occur, the Computing and Telecommunications Division (CTD) will implement software control practices that enable users to test new software.

CTD has established the **/new** directory in UNICOS, where software will reside for short durations before a program product is used in production. Users will be able to test new versions of software by prefixing the appropriate program name or library with **/new/**. For example, **/new/cft** will reference the new CFT Fortran compiler. (See "New CFT Compiler Available for Testing in UNICOS" in this *Newsletter.)* CTD will announce a cutover date when a new version will replace the production version. At that time, the /new/ prefix will not be necessary. When you encounter trouble with a new version of a software product, report it immediately to the User Services consultants at extension 2-5405.

GRAPHICS NEWS

OBTAINING HARDCOPY OUTPUT FROM CGM METAFILES

The American National Standards Institute (ANSI) Computer Graphics Metafile (CGM) has been implemented in an increasing number of computer graphics products. The Computing and Telecommunications Division endorses its use. CGM metafiles generated with workstations and personal computers can be transferred over networks for processing by systems with appropriate graphics output devices.

Recently, Computing and Telecommunications recommended SuperImage, a drawing package for the IBM Personal Computer. (See "SuperImage: Recommended Personal Computer Graphics Software" in the January 1988 *Newsletter.)* The SuperImage/SuperChart personal computer software can produce CGM as one type of output. By following the procedure outlined below, you can send your SuperImage/SuperChart drawings to any of the hardcopy devices (such as the Matrix camera and the CalComp plotter) available in Building 221.

Procedure for Sending SuperImage CGM Output to Central Plotting Devices

1. Erase the old PC METAFILE.DAT file or else the new CGM metafile being created will use your old file in its entirety (even if the old file is larger).

2. Invoke SuperImage and ask for the CGM metafile driver:

```
C:\SUPERIMG> si meta
```

(You can get the CGM metafile driver invoked directly by changing "&1" in the SI.BAT file to META.)

3. Draw your picture and PRINT to CAMERA. This procedure will create the CGM metafile METAFILE.DAT. Currently, you can create only one picture at a time.

CMS

4. Transfer the CGM metafile from your PC to CMS:

Send METAFILE.DAT over to CMS via Kermit:

```
kermit

Kermit-CMS> set lrecl 512
Kermit-CMS> set recfm f
Kermit-CMS> set file bin
Kermit-CMS> receive cgmbin data a
```

(escape back to PC Kermit with CNTL-] C)

```
Kermit-MS> send metafile.dat
```

(after file transfer is complete, get back to CMS)

```
Kermit-MS>C
```

VMS

4. Transfer the CGM metafile from your PC to VAX/VMS:

Send METAFILE.DAT over to VAX/VMS via Kermit:

```
$ kermit

Kermit-32> set file type fixed
Kermit-32> server
```

(escape back to PC Kermit with CNTL-] C)

```
Kermit-MS> send metafile.dat
Kermit-MS> finish
Kermit-MS> C
Kermit-32> exit
```

5. Invoke the **HARDCOPY** command to get your output:

```
hardcopy
```

The Computing and Telecommunications Division has enhanced the **HARDCOPY** commands in CMS and VMS to accept CGM graphics metafiles and has enhanced the postprocessing procedures in MVS batch. As a result, steps 4 and 5 of the above procedure apply to binary CGM metafiles produced by any personal computer program.

Figure 1 illustrates some capabilities of SuperImage.

Figure 1: Some Capabilities of SuperImage

CGM GRAPHICS CAPABILITIES AVAILABLE FOR TESTING IN CMS AND MVS

The beta test copy of the Computer Associates (CA) CGM (Computer Graphics Metafile) utility is now available for testing in CMS and MVS. CGM follows the ANSI standard X3.122-1986 for creating and interpreting metafiles. CGM metafiles can be created by a graphics program on a computer, transferred over a network, and edited or postprocessed on another workstation or computer.

CA CGM consists of two parts. The first part, the generator, produces CGM files from either Tellagraf or Disspla. The second part, the translator, renders the CGM files for selected output devices. This rendering of CGM files can produce a plot on any of the graphics devices maintained by the Computing and Telecommunications Division.

CMS Tellagraf users can create graphics by identifying their graphics terminal as the primary device and by selecting CGMTAG as the secondary device. When you've created a satisfactory picture on your terminal, use the **SEND** command to create a CGMBOUT DATA file on your A-disk. Then you can invoke the **HARDCOPY** command to produce a viewgraph, slide, or paper plot; or you can transfer the CGMBOUT to another computer (for example, an IBM Personal Computer with SuperImage) for editing and enhancement.

To produce a CGM file from Disspla in CMS, include a call to the CGM device driver in the Fortran plot creation program, as in the following example:

```
CALL CGMBO(' ',0,0)
```

Disspla creates the file CGMBOUT DATA A on the user's A-disk. The user may specify a filename for the CGM file by including the name and the number of characters in the name in the CALL. For example, enter

```
CALL CGMBO('mycgm',5,0)
```

to create a CGM file named MYCGM DATA A.

Users can view the CGM file just created either by invoking the CGMPOP61 exec or by calling a device driver and specifying:

```
CALL CGBPOP('$',0,0)
```

In both cases, if you are using the default file name, rename the CGMBOUT file to CGMBIN prior to postprocessing; or, include the file name in the CALL by specifying:

```
CALL CGBPOP('mycgm',5,1)
```

Users can produce slides or paper output with the HARDCOPY exec.

To use Tellagraf 6.1 or Disspla 10.5 in CMS, issue the following commands:

```
CP LINK GRAPHICS 2 vaddr
ACCESS vaddr filemode
```

where "vaddr" is any unassigned virtual address and "filemode" is any unassigned filemode letter occurring alphabetically before any filemode letter associated with the GRAPHICS 1 minidisk in your virtual machine.

To produce a CGM file from Disspla in MVS, call the CGM device driver in the Fortran plot creation program, as in the following example:

```
CALL CGMBO('userid.cgmbout.data',nn,0)
```

where "userid.cgmbout.data" is the complete datasetname of the CGM file to be created and "nn" is the number of characters in "userid.cgmbout.data."

Disspla writes a CGM file to Fortran unit 61. The user should include DD statements in the JCL similar to the following:

```
//FT61F001 DD DSN=userid.cgmbout.data,
// DCB=(RECFM=F,LRECL=512,BLKSIZE=512),
// SPACE=(512,(mm,nn)),UNIT=unit,DISP=(NEW,CATLG)
```

where "mm" and "nn" are the primary and secondary allocations and "unit" is either PERM or TEMP.

Users can postprocess CGM files with the following JCL:

```
//stepname EXEC postproc,INDSN='datasetname'
```

where "postproc" is a graphics hardcopy cataloged procedure (for example, PCC5835 and PMATRIX) and "datasetname" is the name of your CGM file.

To test the CA CGM postprocessor with VS Fortran in MVS, add the parameter PRELIB="SYS2.DISLIBVS" to the cataloged procedure you use when linkediting or loading your plotting programs.

Users may update their *Tellagraf User's Manual* with the *CA-Tellagraf CGM Bulletin of Release Information on Enhancements/Fixes* (Version 6.1). The updated documents for the *CA-Disspla User's Manual* are the *CA-Disspla Update User's Manual Part F* (Version 10.5) and the *CA-Disspla Brief Bulletin of Release Information on Enhancements and Fixes* (Version 10.5). These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

MVS NEWS

LIBRARIAN 3.7 WITH LIBAUDIT AVAILABLE FOR TESTING IN MVS

Librarian version 3.7 is available for user testing in MVS. The most significant addition in this Librarian release is the LIBAUDIT option. LIBAUDIT allows you to revise Librarian master file modules interactively with available text editors without losing the benefit of Librarian's change record audit trail. Previously, if you revised a Librarian module outside Librarian and replaced that module in the master file with a **-REP ALL** control statement, Librarian would mark every record in that module as changed. If your master file was initialized for archiving, Librarian would save the entire replaced module as a separate archive level. With LIBAUDIT, Librarian will automatically compare the original and changed modules whenever you use a **-REP ALL** control statement and only mark and archive the records that have actually changed. The benefits are:

1. Saving only the actual changes for archived modules results in significant disk space savings (which makes the archiving feature feasible for even large master files).

2. Marking only the changed records maintains a traceable audit trail for all modules, whether you revise them with Librarian control statements or with interactive editors.

MVS Wylbur is the most convenient editor to use with Librarian master files. You can **USE** or **COPY** (but not **SAVE**) Librarian master file modules similar to partitioned dataset members by appending the LIBR parameter to your commands:

```
USE name.master#module LIBR

COPY FROM name.master#module LIBR
```

To access this test version of Librarian, use the following JCL:

```
//stepname EXEC LIBU,PREFIX='master name',
//          PRELIB='SYS2.LIBR'
```

where "master name" is the name of your Librarian master file (the LIBU procedure automatically appends ".MASTER" to the master file name you specify). You do not need to do anything special to take advantage of LIBAUDIT; Librarian automatically invokes LIBAUDIT whenever you replace a Librarian master file module with the **-REP ALL** control statement. We have increased the default REGION size in the LIBU procedure to 512K to accommodate the needs of LIBAUDIT, when comparing large modules for differences.

NEW VERSION OF DFSORT AVAILABLE FOR TESTING IN MVS BATCH

Version 1.10.0 of IBM's DFSORT sort utility is now available for user testing in MVS batch. Version 1.10.0 is IBM's latest version and is upward-compatible with Version 1.8.0 currently offered in MVS batch. Version 1.10.0 offers improved performance.

To test the new version of DFSORT before September 19, 1988, use the following JCL:

```
//stepname       EXEC    SORT,LIBRARY='SYS2.SORTLIB'
//SORT.STEPLIB   DD      DSN=SYS2.SORTLINK,DISP=SHR
```

If there are no major difficulties, this test version of DFSORT will become the production version on Monday, September 19, 1988. At this time, Computing and Telecommunications will rename the SYS1 datasets to SYS0 and the SYS2 datasets to SYS1. You will no longer need to specify them in your JCL. Users who experience difficulties should contact the User Services consultants at extension 2-5405.

PL/I OPTIMIZING COMPILER VERSION 1.5.1 IS AVAILABLE FOR TESTING IN MVS BATCH

Version 1.5.1 of the PL/I Optimizing Compiler is available in MVS batch for user testing. Version 1.5.1 is upward-compatible with Version 1.4.0, currently offered in MVS batch. Version 1.5.1 offers execution performance improvements and fixes many bugs. IBM no longer provides assistance or fixes bugs in Version 1.4.0.

To test Version 1.5.1 of the PL/I Optimizing Compiler in MVS batch, code the following parameters on the EXEC statement of the PL/I Optimizing Compiler cataloged procedure you have been using:

```
STEPLIB='SYS2.PLI.OPT.LINKLIB',
TASKLIB='SYS2.PLITASK',      (for multitasking)
LIBRARY='SYS2.PLIBASE'
```

For cataloged procedures with GO steps, include the following additional statement:

```
//GO.STEPLIB DD DSN=SYS2.PLI.OPT.TRANSLIB,DISP=SHR
```

For example, to compile, linkedit, and go, code:

```
//stepname     EXEC  PLOCEG,
//                   STEPLIB='SYS2.PLI.OPT.LINKLIB',
//                   TASKLIB='SYS2.PLITASK',  (for multitasking)
//                   LIBRARY='SYS2.PLIBASE'
//GO.STEPLIB   DD    DSN=SYS2.PLI.OPT.TRANSLIB,DISP=SHR
```

If there are no difficulties, this test version of the PL/I Optimizing Compiler will become the production version on Monday, September 19, 1988. At this time, Computing and Telecommunications will rename the SYS1 datasets to SYS0 and the SYS2 datasets to SYS1. You will no longer need to specify them in your JCL. Users who experience difficulties should contact the User Services consultants at extension 2-5405.

TELECOMMUNICATIONS NEWS

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,375 computers at over 835 sites. Since the last *Newsletter* article in June 1988, the following universities and organizations have joined BITnet:

AGIP S p.A.--Milan
Agricultural University of Norway
Bilkent University--Ankara
British Columbia Systems Corporation
College of the Holy Cross
Denison University
Department of Fundamental Research--Grenoble
Energy Mines and Resources--Canada
European Center for Research and Advanced Development--Toulouse
Gettysburg College
Gustavus Adolphus College
Hiroshima University
Kyushu University
Manhattan College
Merit Computer Network--Michigan
Millersville University of Pennsylvania
Mount Holyoke College
Nanzan University
National Center for Atmospheric Research
National Institute for Demographic Studies--Paris
National Museum of Natural History--Paris
Osaka Electro-Communication University
Regional Technical College--Cork, Ireland
United Nations Educational, Scientific, and Cultural Organization (UNESCO)--France
United Nations Food and Agriculture Organization--Rome
University of Innsbruck
University of Southern Alabama
Virginia Community College System
Von Karman Institute--Rhode-St-Genese, Belgium
Yugoslavian Academy of Statistics--Belgrade

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS)

```
HELP BITNET NODES
```

or enter (in Wylbur):

```
HELP BITNET
```

VAX/VMS NEWS

CENTRAL VAX CLUSTER UPGRADED TO VMS VERSION 4.7

On Tuesday, July 5, 1988, Computing and Telecommunications upgraded the operating system of the central VAX cluster to Version 4.7. Since the cluster was previously running Version 4.5, this upgrade included both the 4.6 and 4.7 versions. Digital Equipment Corporation (DEC) has shipped the next major release of VMS (Version 5.0), and this upgrade prepares the cluster for the next upgrade.

Version 4.7 (and 4.6) have brought many fixes for miscellaneous difficulties, but few highly visible new features. The VMS system now recognizes VT300 series terminals. A complete VAX C language run-time library is installed. Some of the standard C functions were unavailable with VMS Version 4.5, and the C library of functions was updated with the VMS Version 4.7 update. Version 4.7 now works with the Personal Computer File Services (PCFS) product. Owners of personal computers with (1) DECnet-DOS, (2) the PCSA/PC client software from DEC, and (3) the DEPCA Ethernet connection can configure their system without any local disk, as is done frequently with scientific workstations. Personal computer software can now be stored in the VAX cluster disk storage, and users will benefit from the data protection and preservation procedures in place for the cluster.

Version 5.0 will include several valuable new features that will benefit users. One important feature is the ability of the central cluster to host diskless workstations in a local-area VAX cluster (LAVC). Previously, large VAX clusters and LAVCs could not coexist. Once Version 5.0 is installed, owners of VAX Stations or MicroVAXes can use the disk storage resources of the central cluster and can benefit from all of the data management services and protection procedures for user data and files.

NAG MARK 11 LIBRARY TO BE REMOVED FROM VAX 8700

Currently, there are two NAG (Numerical Algorithms Group) libraries available on the central VAX 8700: Mark 11 and the update, Mark 12. On Thursday, September 1, 1988, Computing and Telecommunications will remove the Mark 11 version of the NAG library. Users may need to modify their Fortran programs because NAG Mark 12 is not entirely upward-compatible with the Mark 11 library. To see the changes between the Mark 11 version and the Mark 12 version and information on the available mathematical library routines, enter:

```
$ HELP @NAG
```

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

The Computing and Telecommunications Division periodically publishes manuals to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computer Associates, Inc.

The *CA-Tellagraf CGM B.R.I.E.F. Version 6.1* describes how to create a CGM file in Tellagraf, how to send the CGM file to a printer, how to modify the file before printing, and how to retrieve a CGM file into Tellagraf.

SAS Institute Inc.

Changes and Enhancements to Base SAS% Software for Personal Computers, Release 6.03 SAS% Technical Report P-171 describes the changes and enhancements in base SAS software for Release 6.03. Significant changes and enhancements encompass seven major areas: SAS Display Manager System (a full screen editor with three new windows and cut and paste features); Catalog Conversion (users must convert catalogs created under Release 6.01 or 6.02 to 6.03 format); Compatibility Features (PRINTTO, DO OVER, and INPUT statements allow users software compatibility with earlier versions of SAS); General Processing (includes greater flexibility in routing output, error handling, and expanded memory services); Changes in the DATA Step (new features include arrays, delimiters, ten new functions for financial statistics, etc.); Changes to DATA and PROC Step Features (macro features have been greatly enhanced); and New Procedures (includes CATALOG, COMPARE, PRINTTO, etc.).

Swanson Analysis Systems, Inc.

The *ANSYS® Execution Guide (ANSYS User's Manual -- Appendix S) Revision 4.3A VAX/VMS Version* gives information about running the ANSYS program. It consists of three sections: Running the ANSYS program, Running PLT33I, and Troubleshooting.

WATCOM Publications Limited

The ANSI Standard: A Summary for the C Programmer summarizes the major changes to the standard for the C Programmer. The summary consists of seven areas: keywords, data types (that is, integers, floats, pointers, and arrays, etc.), data objects (that is, initialization and linkage), functions, the preprocessor, the C library, and miscellaneous changes.

The *Waterloo C Development System Version 3.0 for VM/CMS User's Guide* provides information to users for C Programming on CMS. This guide also provides a summary of new or enhanced features for 3.0 and lists the incompatibilities with Version 1.3. Note that users whose programs use the *localtime* function without a parameter will need to modify and to recompile them to be compatible with Version 3.0. See this manual for further details. Users who have modified library source files should examine the *Run-time Library Version 3.0 Details* and compare the individual source files from Version 1.3 to Version 3.0 equivalents.

The *Waterloo C Version 3.0 for VM/CMS Runtime Library Reference* is an extensive collection of C macros, functions, types, and variables and System/370 assembler routines that provide a runtime environment for programs compiled with the Waterloo C compiler. In addition, it provides several CMS-dependent functions (for example, the _print1 function) to use CMS macro functions. This reference consists of three sections: an introduction, detailed descriptions of functions, and header file descriptions for C programs to define symbols and declare functions.

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD JULY 5, 1988

The chairperson, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:05 p.m.

Reorganization of Computing Services. Dave Weber (Computing Services) announced that there would be a reorganization of Computing Services soon, but details were not final now. More information will be available at the next CUG meeting. [On Monday, July 11, 1988, Dr. Alan Schriesheim, Laboratory Director, announced the formation of the Computing and Telecommunications Division (CTD). See "We're Now the Computing and Telecommunications Division!" in this *Newsletter*.]

PBX Update. Allen Winter (Computing Services) discussed the current status of the PBX system. The switch was accepted as of February 1988, and LANmark was accepted as of March 1988. At present, about 22 percent of the lines are digital data lines. There are 39 LANmark connections (including 32 gateways in use). Users have reported difficulties with the Asynchronous Data Interface (ADI) 100's and 101's resetting when there is a power outage. Installation of a diode eliminates this difficulty, and all ADIs will have them installed by September 1, 1988.

There has also been some difficulty purchasing additional Integrated Telephone Equipment (ITE) to fill orders, because of budget constraints. Approval has now been granted for lease-to-purchase acquisitions. Partial shipments of equipment are expected in about two weeks. Communications is using ITE-12's to fill ITE-4 orders to avoid new procurements.

Recent Computer Outage. Gary Schlesselman (Computing Services) reported on the causes of the computer outage that began on June 25, 1988, at 5:00 p.m. and lasted 39 hours. This outage began with a Laboratory-wide power failure of less than two seconds. The main trouble occurred in a string of IBM disks. The power surge damaged the mother board, servo card, and controller card (controller section) of the head disk assembly. Over $15,000 worth of hardware damage was repaired under the maintenance contract. If no damage is sustained after a power failure, recovery takes a couple hours.

This power failure was the third for the Laboratory this year--an increase over previous years. There was discussion on the use of Uninterruptable Power Supplies (UPS). UPS might have handled the outage, but (1) there is not enough floor space for the battery packs and (2) the cost for emergency power would cost $150,000 to $300,000 (and might not really solve the difficulty). A cheaper alternative to protect the equipment might be surge protectors. A study of both possibilities is underway.

Cray X-MP Update. Joe Midlock (Computing Services) discussed the current status of the Cray X-MP computer. We have installed the Transmission Control Protocol/Internet Protocol (TCP/IP) gateway, and a few pioneers are testing it. If all goes well, it should be available to the user community in a couple weeks.

The DD-40 disks will replace the DD-49 disk system and will increase the Cray disk space by a factor of four. The DD-49's will remain here as a backup for a short time. However, since there is only one disk controller, only one system can be attached at a time. Computing Services is currently reviewing classes of storage and disk charges. Also under review is scratch space (automatically cleaned every 15 minutes) and short space (automatically cleaned on Tuesday, Wednesday, Thursday, and Friday). Work continues on attaching IBM disk drives directly to the Cray, with a possible August 1988 completion. However, work still needs to be done with error recovery, and there is a need to improve the IBM disk performance. There are only two spare IBM drives available, but a future acquisition may increase these. A new release of UNICOS is expected on August 5, 1988. As of this meeting, Computing Services has not received a list of fixes and upgrades.

Hydra Protocol Converter Upgrade. Bob McMahon (Computing Services) announced the features of the new Hydra Protocol Converter. The old one has a limited number of terminal identifiers, requires resetting the entire box when only a single port needs resetting, and must download the local tables each time the box is reset. The new Hydra has more terminal identifiers, a single port can be reset without resetting the entire box, and the local tables reside in EPROMs so they are loaded only once. Testing is underway, with a possible cut-over date in mid-August 1988. However, the Hydra still fails to initialize the keypad in the VT100 mode. Two Hydra difficulties--random screen clearing and security--were mentioned. The Computer Network Section will look into resolving these difficulties.

Cy Adams suggested that, for user convenience, Computing Services publish the numbers for testing the latest communications equipment.

Computing Policy Committee Meeting Report. Dotti Bingaman reported on the meeting held on June 10, 1988. Fred Moszur (Computing Services), Jim Patterson (Computing Services), and Rusty Lusk (Mathematics and Computer Science) presented an overview of parallel processing activities at Argonne. They described a two-year joint Computing Services and Mathematics and Computer Science study in which they are converting existing ANL computer programs to run on the shared memory, local memory, and massively parallel machines now installed in the Mathematics and Computer Science Advanced Computing Research Facility. They believe that they will be able to use this experience to encourage DOE to establish its proposed Center for Energy Research Computation (CERC) at Argonne. The Computing Policy Committee supports the decision of the Management Council to aggressively pursue the CERC. Paul Day (Chemistry) proposed that the requirement to attach an ANL-489 form to every purchase requisition for computer-related hardware and software be amended to state a reasonable, lower dollar limit. This proposal would save staff time and paper in preparing and reviewing the form. The Computing Policy Committee recommended that Paul pursue the matter with Procurement.

Dave Weber (Computing Services) reviewed the difficulties associated with limited user software (that is, software purchased by one division that may be of interest to other divisions). He stated that the user base is generally unknown and cannot be estimated with significant certainty, the life cycle costs of this software are high compared to estimated recovery, and the annual central computing budget does not include and cannot accommodate these start-up costs. Dave proposed that the sponsoring division pay initial costs, provide application support, and be reimbursed by Computing Services based on additional use. Applications would be reviewed on a regular basis to determine subsequent responsibility. The Computing Policy Committee agreed with the proposal.

Doug Engert (Computing Services) spoke about the status of Cray-related matters (such as the VAX and the TCP/IP gateways, the DS-40 disk drives, and the use of the IBM 3380 disk drives). Finally, Dave Weber displayed charts of computer usage and billings for the IBM, Cray, and VAX 8700 installations in the central facility.

Data Management Committee Report. Bert Toppel (Applied Physics) reported on the Data Management meeting on June 21, 1988. Doug Engert discussed the status of disk storage on the Cray (see "Cray X-MP Update" above). DOE has approved the upgrade, and Cray Research is looking at an unsigned contract. Computing Services expects the new disks will be more reliable than the current DD-49 disks. When the new disks are installed, users will enjoy a six-fold to eight-fold increase in storage space, because space needed for the system, scratch, and program libraries should remain about the same. Plans are also underway to attach between 0.6 and 10 gigabytes of IBM 3380 disk space to the Cray. These disks are slower than the DD-49 or DS-40 disks. Someone suggested that Computing Services establish a new class of storage space to distinguish between the IBM 3380 and DS-40 disks. The n1 file system is about 37 percent free on the Cray, and most users have complied and not left files on the Cray. The SHORT directory was reported to have a lot of space available. SHORT storage space is currently cleaned only from time to time. Plans are underway to clean this space daily (except for weekends and holidays). Doug noted, however, that it was probably not appropriate to remove empty directories. The SCRATCH cleanup will become automated as well. It, too, is currently cleaned only from time to time. Since installation of the DS-40 disks will increase long-term storage, users will probably no longer be encouraged to move data off the Cray. Computing Services plans to consider reducing storage costs when the DS-40 disks and IBM 3380 disks are on the Cray.

Rich Raffenetti (Computing Services) discussed the storage situation on the VAX cluster. The system currently has about 4.4 gigabytes of storage, of which about 56 percent is available for user files. About 0.5 gigabyte is dedicated to scratch space. At the end of May 1988, the daily average charged user space was about one gigabyte. Growth projections indicate that storage space on the VAX cluster is becoming a limitation. Computing Services is currently avoiding growth limitations by moving entire cost centers from one physical volume to another. The goal of these moves is to maintain adequate free space for new files. Computing Services plans to acquire two gigabytes or more of additional storage, of which about two-thirds will be available to users for permanent file storage. It might be useful if the VAX cluster system considered a more elaborate storage allocation system similar to that used in MVS--having more classes of storage space (such as PERM, TEMP, and DATABASE). Joe Marentic (Computing Services) reported that the storage on the MVS/VM system has been stable for some years with about 80 percent allocated for the PERM and DATABASE storage systems.

John Volmer (Computing Services) discussed plans for increasing the disk storage capacity on the IBM and the Cray. This increase involves the purchase of IBM 3880 disk controllers and IBM 3380 disks on the used market. The new configuration would benefit the integrated financial system as well. The total plan would add about 15 gigabytes to the IBM/Cray complex. Current storage on the IBM system is about 44 gigabytes. Doug Engert commented on the current migration system and pointed out that it was never considered to be an archival storage system. Several users noted that it would be desirable to migrate datasets on command and to delete datasets from the migration tapes. Someone suggested that Computing Services look into this possibility as well as acquiring a commercial archival system.

Gary Schlesselman commented that, at the current growth rate, users will exhaust any room for convenient storage of tapes in about a year. Space contingency plans will be transparent to users but will require additional operator effort. Computing Services is pursuing phased installation of a cartridge tape system that would allow more storage space because of the smaller size of the cartridges compared to the present tape reels.

Doug Engert noted that use of tapes on the Cray is quite crude now. Version 4 of UNICOS (due sometime next month) is expected to be better in regard to tape use on the Cray, but it still will not be perfect. Release 5 (due at the end of this calendar year) is reported to be better in this regard. Computing Services has no plans to improve the situation concerning tape use, but will wait for Cray Research software.

The meeting adjourned at 3:53 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD JULY 13, 1988

Bob Kampwirth (Materials Science) opened the meeting at 11:02 a.m.

John Mattson (Materials Science) demonstrated some of the features of Trapeze Version 2.0 (a combined spreadsheet, graphics, and presentation program from Access Technology). Trapeze Version 2.1 is needed to work properly with System 6.0. The basic operation of Trapeze is the creation of fields consisting of rows and columns of data, charts and graphs, or pictures. This operation allows one to break away from the confines of traditional spreadsheets. Much of the power of Trapeze lies in its built-in functions (including Matrix arithmetic and linear regression, graphic functions (such as line and bar charts), and iterative calculations). In summary, Trapeze has greater flexibility (both for calculations and presentation) than Excel; however, this flexibility is at the expense of requiring more time to set up. Therefore, for presentations and finished reports, Trapeze may be more appropriate; but, for simple spreadsheets that are quick and simple, Excel may suffice.

Rodney East (Materials Science) showed how users can do data acquisition through an IEEE 488 bus and a National Instruments board for the Apple Macintosh SE or the Apple Macintosh II by using a Hypercard front-end. In a very clever design, he and John Mattson had Hypercard mimic the front panel of the instrument in appearance and function. The power of Hypercard is in the relative ease that it can be put together.

After showing how well the data collection system worked, Rodney explained the various parts of Hypercard: stacks, backgrounds, cards, fields (text), buttons, art work, Hypertalk (script), XCMDs (calls to external commands), and XFCNs (calls to external functions). The last two items are written in some programming language like Lightspeed C (used by John Mattson) or Macintosh Programmers Workshop (MPW) Pascal (used by Rodney East). These external commands and functions work much faster than Hypercard. Hypertalk script can be in all sorts of places in Hypercard. Therein lies both the strength and the weakness of Hypercard. Rodney has written a XCMD to very quickly plot the data collected. Such an XCMD is installed in the stack with a resource editor and, then, can be used by putting just the XCMD name into the appropriate place in a Hypertalk script.

Overall, working with the Apple Macintosh SE, Rodney can read in 3-5 points/second in an open loop, 5-10 points/second in a tight loop, and about 100 points/second in an XCMD loop. If they read in a whole buffer of data at once, this Hypercard setup could be as fast as a Fortran program. In this last setup, the National Instruments board would control the speed. With the data read directly into Hypercard, it is easy to organize, store, and (when needed) access.

The Programmer's Special Interest Group will have a special meeting the last Wednesday of July (July 27, 1988), when a MPW demonstration will be given. At an earlier meeting, compilers (including Lightspeed Parcel, Turbo Pascal, TML Pascal, MacFortran 020, Lightspeed C, and MPW) were evaluated based on the experience of those present. A list giving the results of this evaluation is available from John Mattson. John would also appreciate further information on Apple Macintosh compilers to add to the list. The Programmer's Special Interest Group normally meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. Call John Mattson at extension 2-5535 for details.

The Excel Special Interest Group normally meets the third Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. In July, the meeting will provide a first look at Excel Version 1.5. There will be no meeting in August. The September meeting will feature the use of function macros in iterative calculations and the conversion of a Fortran program to an Excel worksheet. Call Ralph Leonard (Chemical Technology) at extension 2-3229 for details.

The latest version of Expressionist, a desk accessory (DA) for writing equations, was said to be very easy to learn and to use. Duane Maas (Apple Computer) warned that MacDraw II can be used with System 5.0 but that the Apple LaserWriter driver Version 5.2 from System 6.0 is needed to print on the Apple LaserWriter without trouble. Excel Version 1.5 has been released. A new version of 4th Dimension is also out. They both will work with System 6.0. A System 6.0.1 is expected out in August 1988. When installing a new system, Duane Maas recommended that the Apple-supplied installer be used at least once so that it writes the boot blocks. The installer saves the fonts and DAs from the old system and installs them on the new system. With System 6.0 and higher, one gets MacroMaker (like QuicKeys but not as good), CloseView (magnifies the screen up to 16x) with white letters on black screen as an option, the use of Apple Macintosh II sounds on the Apple Macintosh Plus and the Apple Macintosh SE, the version number shown in the Get Info box outside the comment area so that it cannot be erased, and the ability of Multifinder to open a new file of an already open application from the finder. A new driver for the Apple LQ printer is expected next month.

Duane Maas explained how all versions of Microsoft Excel (up to and including Version 1.5) were written in Microsoft P code. This is why Excel can use only one megabyte of RAM in the Apple Macintosh. When Excel Version 2.0 comes out, it will be written using a Microsoft C compiler and will use more than one megabyte of RAM.

The August meeting was moved back to the THIRD week in August (Wednesday, August 17, 1988) so that Duane Maas can demonstrate the slide making capabilities of the Cricket Presents and Microsoft PowerPoint presentation programs. Lee Wagar (Graphic Arts) indicated that Graphic Arts is considering the purchase of equipment for making 35mm color slides from the Apple Macintosh output after an initial shakedown of the slide-making hardware establishes a system that is clearly suitable.

The Macintosh Users Group normally meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:35 p.m.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (MAY 31 THROUGH JUNE 29, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,346	1,357	566
Wylbur	1,617	1,642	523
MVS TSO	54	54	11
CICS	1,617	1,642	72
MVS Batch	2,003	2,048	795
VAX/VMS	313	328	172
Cray	200	235	111
All Systems	2,003	2,048	1,035

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	13,818	2,294	1,258	17,370	34,702.1	105.84
Wylbur	11,260	464	413	12,137	10,559.6	11.57
MVS TSO	39	2	6	47	24.1	0.03
CICS	25	0	0	25	0.0	0.82
VAX/VMS	7,531	428	402	8,361	10,145.9	64.07
Cray	782	50	51	883	366.8	2.09
IBM BATCH						
Class U	12,056	2,287	939	15,282	n.a.	39.33
Class W	20,104	2,095	1,009	23,208	n.a.	175.38
Class X	1	1,317	81	1,399	n.a.	144.91
Class Y	0	0	354	354	n.a.	25.78
Class Z	0	0	151	151	n.a.	22.02
Nonmain	13,844	1,420	628	15,892	n.a.	0.00
Total	46,005	7,119	3,162	56,286	n.a.	407.42
CRAY BATCH						
Prime	3,965	504	257	4,726	n.a.	90.72
Night	0	436	31	467	n.a.	59.13
Weekend	0	0	195	195	n.a.	42.79
Standby	0	128	148	276	n.a.	39.94
Total	3,965	1,068	631	5,664	n.a.	232.58
VMS BATCH						
Prime	1,154	253	158	1,565	n.a.	137.31
Night	7	60	21	88	n.a.	26.01
Weekend	0	2	41	43	n.a.	6.96
Standby	0	0	0	0	n.a.	0.00
Total	1,161	315	220	1,696	n.a.	170.28

INPUT/OUTPUT

Lines Printed	
Local	63,803,692
Remote	57,200,469
Fiche	36,745,567
Cards Punched-Local Only	8,807
Tape Mounts	8,577
Microfiche Developed	4,433
Microfiche Frames Developed	801,321

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	0	0
Versatec Jobs	23	230
Matrix 35mm Color	287	1,193
Matrix-8 x 10	3	6
Matrix-Negative	2	4
FR80 Film Plots		
35mm Black/White/Unsprocketed	129	1,168
35mm Black/White/Sprocketed	15	182
35mm Color	1	7
16mm Black/White/Sprocketed	0	0
16mm Color	0	0
105mm Black/White/Unsprocketed	0	0

DATA MANAGEMENT

Tapes Stored	22,355
New Tapes Saved	962
Tapes Released	1,008
Datasets Exported to Tape	3,130
Datasets Imported from Tape	549

* n.a. = not applicable

MVS BATCH SCHEDULING PERFORMANCE FROM MAY 31 AT 7:00 A.M. TO JUNE 29, 1988, AT 7:00 A.M.

	STARTED IN PRIME SHIFT	STARTED IN OVERNIGHT SHIFT	STARTED IN WEEKEND SHIFT	TOTAL OF ALL SHIFTS
CLASS U EXPEDITED BATCH				
Number Started	12,056	2,287	939	15,282
Number Started in 12 Minutes	11,630	1,666	763	14,059
Percent Started in 12 Minutes	96.5	72.8	81.3	92.0
25th Percentile Start Delay (Minutes)	0.1	0.1	0.1	0.1
50th Percentile Start Delay (Minutes)	0.1	0.3	0.1	0.1
75th Percentile Start Delay (Minutes)	0.2	15.3	2.5	0.3
90th Percentile Start Delay (Minutes)	1.8	44.2	30.6	6.2
99th Percentile Start Delay (Minutes)	70.2	228.3	220.6	99.9
CLASS W REGULAR BATCH				
Number Started	20,104	2,095	1,009	23,208
Number Started in 2 Hours	19,866	1,854	1,001	22,721
Percent Started in 2 Hours	98.8	88.5	99.2	97.9
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	0.2	0.0	0.0
90th Percentile Start Delay (Hours)	0.1	2.4	0.0	0.1
99th Percentile Start Delay (Hours)	2.7	12.8	0.9	5.2
CLASS X DEFERRED OVERNIGHT BATCH				
Number Started	1	1,317	81	1,399
Number Started in 15 Hours	1	1,316	77	1,394
Percent Started in 15 Hours	100.0	99.9	95.1	99.6
25th Percentile Start Delay (Hours)	9.5	3.0	0.0	2.8
50th Percentile Start Delay (Hours)	9.5	3.8	0.0	3.6
75th Percentile Start Delay (Hours)	9.5	6.8	0.1	6.7
90th Percentile Start Delay (Hours)	9.5	9.4	1.3	9.4
99th Percentile Start Delay (Hours)	9.5	12.0	27.4	12.1
CLASS Y DEFERRED WEEKEND BATCH				
Number Started	0	0	354	354
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	14.9	14.9
75th Percentile Start Delay (Hours)	0.0	0.0	18.5	18.5
90th Percentile Start Delay (Hours)	0.0	0.0	33.3	33.3
99th Percentile Start Delay (Hours)	0.0	0.0	61.0	61.0
CLASS Z LIMITED DEFERRED WEEKEND BATCH				
Number Started	0	0	151	151
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	75.6	75.6
75th Percentile Start Delay (Hours)	0.0	0.0	79.1	79.1
90th Percentile Start Delay (Hours)	0.0	0.0	79.4	79.4
99th Percentile Start Delay (Hours)	0.0	0.0	89.9	89.9
TOTAL OF ALL CLASSES				
Number Started	32,161	5,699	2,534	40,394

AVAILABILITY STATISTICS, BY MACHINE (MAY 31 THROUGH JUNE 29, 1988)

	Monthly Totals	*Scheduled*			*Unscheduled*		
		Hdware	*Sftware*	*Other*	*Hdware*	*Sftware*	*Other*
			YELLOW IBM 3033				
All Shifts							
Interruptions	17	2	11		2	1	1
Hrs Unavailable	56.76	2.00	9.16		6.65	0.78	38.16
MTF/Unscheduled	165.80				331.61	663.23	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	2	11			1	
Hrs Unavailable	11.95	2.00	9.16			0.78	
MTF/Unscheduled	252.05					252.05	
			RED IBM 3033				
All Shifts							
Interruptions	5	3				1	1
Hrs Unavailable	41.65	4.53				0.16	36.95
MTF/Unscheduled	339.17					678.35	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3	2				1	
Hrs Unavailable	3.00	2.83				0.16	
MTF/Unscheduled	261.00					261.00	

AVAILABILITY STATISTICS, BY SERVICE (MAY 31 THROUGH JUNE 29, 1988)

	Monthly Totals	*Scheduled*			*Unscheduled*		
		Hdware	*Sftware*	*Other*	*Hdware*	*Sftware*	*Other*
			CMS				
All Shifts							
Interruptions	5	3				1	1
Hrs Unavailable	41.65	4.53				0.16	36.95
MTF/Unscheduled	339.17					678.35	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3	2				2	
Hrs Unavailable	3.00	2.83				0.16	
MTF/Unscheduled	261.00					261.00	
			WYLBUR				
All Shifts							
Interruptions	20	3	12		2	2	1
Hrs Unavailable	60.61	3.96	10.46		6.86	1.15	38.16
MTF/Unscheduled	131.87				329.69	329.69	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	16	2	12			2	
Hrs Unavailable	13.71	2.10	10.46			1.15	
MTF/Unscheduled	125.14					125.14	
			MVS TSO				
All Shifts							
Interruptions	20	3	12		2	2	1
Hrs Unavailable	60.61	3.96	10.46		6.86	1.15	38.16
MTF/Unscheduled	131.87				329.69	329.69	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	16	2	12			2	
Hrs Unavailable	13.71	2.10	10.46			1.15	
MTF/Unscheduled	125.14					125.14	
			JES3				
All Shifts							
Interruptions	18	2	11		2	2	1
Hrs Unavailable	57.30	2.10	9.20		6.86	0.96	38.16
MTF/Unscheduled	132.54				331.35	331.35	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15	2	11			2	
Hrs Unavailable	12.26	2.10	9.20			0.96	
MTF/Unscheduled	125.86					125.86	
			CICS				
All Shifts							
Interruptions	3				1	1	1
Hrs Unavailable	6.50				2.33	0.91	3.25
MTF/Unscheduled	237.83				713.50	713.50	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3				1	1	1
Hrs Unavailable	6.50				2.33	0.91	3.25
MTF/Unscheduled	85.83				257.50	257.50	
			VAX/VMS				
All Shifts							
Interruptions	7	2	3		1		1
Hrs Unavailable	8.41	3.33	3.78		0.30		1.00
MTF/Unscheduled	355.79				711.58		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	6	2	3		1		
Hrs Unavailable	7.41	3.33	3.78		0.30		
MTF/Unscheduled	256.58				256.58		
			CRAY				
All Shifts							
Interruptions	30	9	14			4	3
Hrs Unavailable	59.90	21.00	9.18			2.13	27.58
MTF/Unscheduled	94.30					165.02	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	18		14			2	2
Hrs Unavailable	10.61		9.18			0.85	0.58
MTF/Unscheduled	63.34					126.69	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (MAY 31 THROUGH JUNE 29, 1988)

COST	CENTER	BATCH	WYLBUR	CMS	MVS TSO	VAX/VMS	CRAY	DISK	OTHER	TOTAL
102	EBR-AW	708	1,282	237			5,233	1,837	440	9,737
104	EBR-IL	4,051	1,071	1,378		2		3,029	1,973	11,505
105	MSD	1,742	263	504		1,975	12,631	3,604	4,541	25,261
107	CMT	4,345	319	1,687		2,754		1,544	14,504	25,152
109	PHY	722	635	1,696		833	3,413	3,057	2,001	12,357
110	BIM	1,930	325	1,759	2	2,712	1,425	4,626	2,185	14,963
112	RAS	8,637	4,006	1,080		379	4,252	10,249	5,177	33,780
113	REE-SRF	58	4					10	19	90
114	MCT	3,254	765	2,269		1,208	21	4,237	2,325	14,080
115	ENG-IL	1,062	252	828		116		1,028	571	3,857
116	AP-IL	32,004	8,672	4,857	13	1,120	9,741	29,265	5,802	91,473
117	AP-AW	5,025	954	1			3,718	5,364	165	15,227
118	REE-AW	392	238	349		321		1,676	127	3,104
119	AL-AW								24	24
120	CHM	552	196	91		6,403	4,818	3,526	2,177	17,763
130	APS	524	14	326		436	34	1,608	284	3,226
136	PNS	82	5	28		29	2	132	516	794
137	HEP	125	2	240	15	157	2,121	2,219	1,368	6,249
139	DEP	1,229	1,044	2,348		5		1,441	890	6,957
143	SSD-EL	287	15	133		7		114	936	1,492
145	MCS	44	2	88		42	1,089	819	5,424	7,507
148	HD	334	11	107				867	140	1,459
149	ER	744	152	1,043		6,297	1,039	2,154	4,123	15,551
150	SPM	112	0	53				163	7	336
161	TIS	2,570	95	16		1		748	294	3,725
171	RPD							120	71	190
174	EEP	216	26					68	41	351
178	FP	88	16	1		1		361	289	755
190	EES	12,368	3,463	936		24,362	171	19,501	306	61,106
197	IEP	447	24	372				157	40	1,040
201	OTD	47	1	173				373	281	874
202	OPS	17	1	23				43	104	188
210	SSD-CS	114	5	213				57	88	476
211	ENG-DE							267	224	491
216	SSD	105	10	62				172	73	422
222	SSO-LF								24	24
232	SEC	20	0					492	64	576
234	SSO-HP	28	4	124				144	41	340
235	SSD-OHS	166	23	214				536	158	1,098
236	OHS-FD								24	24
245	SSO-CSD	4,269	310	1,365				6,186	2,683	14,813
246	TIS-NESC	22	0	13				56	714	805
247	SSO-COM	818	79	1,403				1,097	640	4,037
260	SSD-GA	103		57				183	985	1,329
269	CMT-AC	100	12	32				101	43	288
271	OTD-RPA	775	86	162				221	141	1,385
272	APS			8				18	0	27
273	OTD-PR	35	2	112				50	33	231
274	OTD-EET	43	1	18				129	54	245
275	OPA	90	1	300				270	47	707
276	OPA-MP	28	3	5				44	2	81
315	SSD-MS	80	5	1,983				1,473	420	3,961
316	PFS-VM	21						49	61	131
317	PFS-DR	59	1					19	24	104
319	SSD-TVL			261				12	24	297
322	SSD-PRO	1	0					61	34	96
333	QAD-PQ	55	19					227	57	358
336	QAD-IN	10								10
400	CR-CTR	8,021	528	776				8,022	1,615	18,963
401	CR-ACT	6,299	595	506				14,803	380	22,583
402	OCF-DE								100	100
403	CR-BUD								24	24
410	HR	3,313	156	8,875				4,657	983	17,984
412	AAP			7				98	109	213
501	PFS-BM	16						44	61	120
502	PFS-IN								24	24
503	PFS-GR								24	24
504	PFS-CU								24	24
505	PFS-WMO			59				61	49	169
506	PFS-PMO	317	1	115				216	66	715
510	PFS-US								25	25
512	PFS-FPE	335	74	51				683	95	1,239
530	AW-SMO	92	3	4				49	25	174
531	AW-HR		6	65				36	24	131
532	AW-SPM	433	4	411	70			509	118	1,545
533	AW-ACT								24	24
534	AW-PUR							18	24	42
535	AW-SEC							31	24	55
536	AW-SS	4	1	44				260	25	334
537	AW-IS								24	24
538	AW-MHO	1	29	18				62	24	134
550	AW-CAS	261	36	71				120	44	531
551	AW-RM							12	24	36
554	AW-MS		1	26				26	24	76
556	AW-SE	256	11	134				81	29	511
557	AW-PS	3	7	131				68	24	234
558	AW-PS							6		6
559	AW-FS								24	24
561	QAD-AW							14	25	38
563	AW-TRP								24	24
750	OUTSIOE	730	556					770	495	2,551
751	FNAL	4,169	1	12				1,361	392	5,936
752	NAVY	4,257	1,269	796				6,589	3,623	16,533
753	METC			17				37	600	653
754	DOE-CH							6	117	123
757	COLLABOR	11	14	415				427	542	1,409
TOTAL	CHARGE	$119,176	$27,708	$41,487	$101	$49,160	$49,708	$154,868	$73,676	$515,885
245	SSD-CSD	12,985	1,873	90,959	21	6,455	2,787	27,375	32,065	174,522
800	CSD-OPS	24,676	709	26,953	12	4,915	423	3,269	6,299	67,257
TOTAL	NO CHARGE	$37,661	$2,582	$117,913	$33	$11,370	$3,211	$30,644	$38,365	$241,779

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	Onsite (Illinois)	Onsite (Idaho)	Offsite (Area Code 312)
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	6-7463	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	6-7005	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	6-7005	972-7612
300 Bits Per Second	2-7603	6-7005	972-7603
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	6-8700	972-8700
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
ARPAnet Data Communications Network			
1,200 to 2,400 Bits Per Second Full-Duplex	2-7490	n.a.	972-7490

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	VM/SP	VMS	MFEnet Gateway	ARPAnet
Monday to Thursday	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

* Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

SUBJECT INDEX FOR CALENDAR YEAR 1988 (8/88)

These entries refer to *Newsletters* published in 1988. All previous *Newsletters* are indexed in the December 1987 issue of the *Newsletter* or use the LOOKUP command in CMS, Wylbur, and distributed VAX computers.

- Account aliases
  - VAX NJE users may specify for MVS batch jobs ... 2518
- Advanced Computing Research Facility (ACRF) ... 2513
  - parallel computing class ... 2467, 2478, 2487, 2499, 2514, 2525
  - programming techniques seminar ... 2514, 2525
  - two-week Institute in parallel computing ... 2525
  - update ... 2478
- Advanced Computing Seminars ... 2489, 2500
- Answer/DB
  - computer-based training course available in CMS ... 2479
- ANSYS Structural Analysis Program
  - to move from MVS batch to VAX 8700 ... 2543
- Apple LaserWriter
  - upgrade kit available ... 2487
- Application System
  - Project Management Office evaluation ... 2497
- ARPAnet
  - BITnet gateway changes ... 2458
- Asynchronous Data Interface (ADI)
  - use MKO with ... 2531

- Biomedical Computer Programs (BMDP)
  - BMDP-87 ... 2480
- BITnet
  - discussion groups available ... 2532
  - network ... 2467, 2493, 2518, 2550
- BLOWUP
  - available on color plotter ... 2489

- CAI (Computer-aided instruction)
  - available for Datatrieve ... 2519
  - available for EVE ... 2519
- CalComp
  - last pen plotter decommissioned ... 2503
- CalComp 5835XP color plotter
  - BLOWUP feature available ... 2489
  - STACK3 feature available ... 2489
- CAL580
  - old CalComp plotter decommissioned ... 2503
- CAL780
  - old CalComp plotter decommissioned ... 2503
- CAL936
  - old CalComp plotter decommissioned ... 2503
- CBT ... (see Computer-based training)
- CICS
  - new application menu screen ... 2526
  - new screen planned ... 2487
- CMS
  - Computer Graphics Metafile (CGM) graphics capabilities available for testing ... 2547
  - Disspla 10.5 available for testing ... 2502
  - Kermit upgrade ... 2545
  - PL/I Optimizing Compiler available for testing ... 2500
  - Speakeasy IV Version Epsilon available for testing ... 2526
  - Tellagraf Version 6.1 available for testing ... 2502
  - upgrade to Release 5 ... 2480
  - VM/SP Release 5 available for testing ... 2515
  - Waterloo C (Version 3.0)
    - available for testing ... 2515
- CMS execs
  - TESTCMS ... 2480
- Compilers
  - Cray CFT77 Fortran compiler now available ... 2501
- Computer Graphics Metafile (CGM) graphics capabilities available for testing in CMS ... 2547
- Computer Graphics Metafile (CGM) graphics capabilities available for testing in MVS ... 2547
- Computer Output and Document Distribution Area (Building 221)
  - renovation of ... 2482
- Computer Users Group
  - current officers and subcommittees ... 2506
- Computer-based training (CBT)
  - courses ... 2479
  - Language Sensitive Editor computer-based training available ... 2491
- Computing and Telecommunications Division
  - established ... 2543
- Computing Center
  - 1988 holiday schedule ... 2488
- Computing Center service schedule
  - Fourth of July 1988 holiday ... 2513
  - Labor Day 1988 holiday ... 2544
  - Memorial Day 1988 holiday ... 2499
- Computing classes scheduled for September 1988 ... 2544

Connection Machine
  acquired by Mathematics and Computer Science Division ... 2513
Consulting
  assistance available through electronic mail ... 2543
Cray UNICOS
  managing program products ... 2545
  new CFT compiler available ... 2545
  standby batch service increased to weeknights ... 2501
Cray X-MP/14 high performance computer
  Disspla Version 10.0 installed in UNICOS ... 2501
  increased UNICOS disk space ... 2528
  operating schedules for UNICOS ... 2465
  rates approved ... 2466
  TCP/IP access for testing ... 2527
  test of IBM disks attached to ... 2529
  UNICOS 3.0 available ... 2465
  update ... 2453, 2465
  VAX/VMS station available for general use ... 2528
  WAIT time charge suspended ... 2528
CRWTH ... 2479
Cuechart
  Version 2.1 ... 2502

Datatrieve computer-based instruction available ... 2519
DFSORT
  available for testing in MVS batch ... 2549
Disks
  attached to Cray X-MP/14 ... 2529
Disspla
  Version 10.0 installed in Cray UNICOS ... 2501
Disspla 10.5
  available for user testing in CMS ... 2502
  available for user testing in MVS ... 2529
Distributed Array Processor (DAP) ... 2478
Documentation
  recently updated and published ... 2458, 2480, 2492, 2505, 2537, 2551
  UNICOS document available ... 2518

Electronic mail
  consulting ... 2543
  discussion groups available on BITnet ... 2532
Electronic publishing
  Texet ... 2478
EVE computer-based instruction available ... 2519
Expert systems
  course in Prolog and basic tools ... 2453
Ezpert
  Version 5.5 installed ... 2497

FETCH command failures ... 2498
Film developing schedule 7/88 ... 2529
Focus
  computer-based training courses available in CMS ... 2479

Graphics
  BLOWUP and STACK3 features available on color plotter ... 2489
  CalComp pen plotter (last one) decommissioned ... 2503
  Disspla 10.0 installed in Cray UNICOS ... 2501
  Disspla 10.5 available for testing ... 2502, 2529
  G1DATA conversion to CA/ISSCO metafiles available ... 2503
  metafile conversion to CA/ISSCO available ... 2503
  negatives available from Matrix camera ... 2489
  SuperImage software for personal computers ... 2456, 2546
  Tellagraf 6.1 available for testing ... 2502
  Versatec decommissioning planned ... 2503
  viewgraphs available from Matrix camera ... 2489
G1DATA
  metafile conversion to CA/ISSCO available ... 2503

Hydra Protocol Converter
  available for testing ... 2532
  available offsite at 2400 baud ... 2490
  new terminal selection menu ... 2532

IBM Personal Computer
  recommended Ethernet boards for ... 2537
  SuperImage graphics software ... 2456
IBM 3033
  replacement planning initiated ... 2453
  task force membership ... 2453
ICUSER
  computer-based training course available in CMS ... 2479
ISPF
  computer-based training course available in CMS ... 2479
Itel disk equipment
  removal of ... 2456

Language Sensitive Editor
  available on the VAX 8700 computer ... 2491
  computer-based training available ... 2491
LaTeX now available on VAX 8700 computer ... 2535
Librarian
  Version 3.7 with LIBAUDIT ... 2548
Local area network (LAN) Ethernet
  reliability improved ... 2490

Machine Keyboard Origination (MKO)
  use with ADIs ... 2531

- MACSYMA available on the VAX 8700 ... 2534
- Materials Catalog (MCAT) ... 2500
- Matrix camera
  - viewgraph development schedule ... 2529
  - viewgraphs and negatives available ... 2489
- Multiprocessing ... 2478, 2513
- MVS
  - Computer Graphics Metafile (CGM) graphics capabilities available for testing ... 2547
  - DFSORT available for testing ... 2549
  - maximum region size reduced ... 2531
  - PL/I Optimizing Compiler 5.1 available for testing ... 2549
  - VAX NJE users may specify account alias for batch jobs ... 2518

- NAG library
  - G floating-point NAG library available on VAX 8700 ... 2504
  - Mark 11 Version to be removed from VAX 8700 ... 2551
- Negative film
  - available from Matrix camera ... 2489

- PBX
  - acceptance ... 2531
- Personal computers
  - OS/2 considerations ... 2457
  - SuperImage graphics software ... 2456
- Phased disk replacement
  - elimination of TSPERM ... 2456
  - elimination of TSP60n disks ... 2456
- PL/I
  - Optimizing Compiler available for testing in CMS ... 2500
  - Optimizing Compiler 5.1 available for testing in MVS batch ... 2549
- PROFS
  - Version 2 Release 2 installation plans ... 2544
- Project Management System (PMS IV) ... 2497
- Protection
  - computer protection ... 2454

- RACF
  - installation procedure ... 2454
  - passwords stored in encoded format ... 2519

- Service rates
  - Cray X-MP/14 rates approved ... 2466
  - surcharge to non-ANL users increased ... 2487, 2499
- Service Schedule
  - Computing Center ... 2465
- Services (computer maintenance)
  - available from Electronics ... 2498
- SPCAL580
  - old CalComp plotter decommissioned ... 2503
- SPCAL780
  - old CalComp plotter decommissioned ... 2503
- SPCAL936
  - old CalComp plotter decommissioned ... 2503
- Speakeasy
  - IV Version Epsilon available for testing in CMS ... 2526
- SPFVERS11
  - Versatec decommissioning planned ... 2503
- SQL
  - computer-based training courses available in CMS ... 2479
- STORECAT ... 2500
- Stores Catalog ... 2500
- SuperImage graphics software ... 2456, 2490
  - hardcopy output ... 2546

- Tape
  - available in UNICOS ... 2517
  - releasing unneeded ... 2513
- TCP/IP
  - Cray UNICOS testing ... 2527
- Tellagraf
  - Version 6.1 available for testing in CMS ... 2502
- Terminals
  - Hydra Protocol Converter available for testing ... 2532
- TESTCMS execs ... 2480
- TeX now available on VAX 8700 computer ... 2535
- Texet electronic publishing system ... 2478
- TSO
  - computer-based training course available in CMS ... 2479
- TSPERM
  - datasets moved to PERM ... 2456
  - no longer defined ... 2456
  - removed through phased disk replacement ... 2456

- UNICOS
  - classes ... 2465
  - Cray CFT77 Fortran compiler now available ... 2501
  - documentation available ... 2518
  - operating schedules on Cray ... 2465
  - tapes available ... 2517
  - update ... 2477
- UNICOS 3.0
  - available on Cray X-MP/14 ... 2465
- UNICOS 3.0.11
  - in production ... 2500
- Unix
  - available on VAX 8700 ... 2470

User assistance
    consulting available through electronic mail ... 2543
USERDETAIL command
    available on VAX 8700 ... 2473

VAX Supercomputer Gateway
    available for general use ... 2528
VAX Supercomputer Gateway testing ... 2516
VAX 8700 computer
    G Floating-point NAG library available ... 2504
    Language Sensitive Editor available ... 2491
VAX 8700 computer system
    cluster upgraded to Version 4.7 ... 2550
    computer-based instruction
        available for EVE and Datatrieve ... 2519
    group manager role created ... 2505
    LaTeX now available ... 2535
    MACSYMA available on ... 2534
    NAG Mark 11 Library to be removed ... 2551
    online Desk Calculator ... 2535
    remote printer service available ... 2534
    software upgrades ... 2473
    TeX now available ... 2535
    Unix available on ... 2470
    USERDETAIL command available on ... 2473
VAX/VMS
    command line editing ... 2468, 2469
    command line recall ... 2469
    print capability extended ... 2491
    software distribution kit sharing procedure extended ... 2490
    users may submit account alias for MVS batch jobs ... 2518

Versatec
    planned decommissioning ... 2503
VERS11
    Versatec decommissioning planned ... 2503
Viewgraphs
    available from Matrix camera ... 2489
    schedule ... 2529
Virtual Machine System Product Release 5 (VM/SP5)
    available for testing ... 2515
VM/SP5 ... (see Virtual Machine System Product Release 5)

WAIT time
    on Cray, charge for suspended ... 2528
Waterloo C
    version 3.0 available for testing in CMS ... 2515
Wylbur
    fetch failures ... 2498

X.25
    expanded access ... 2490

Argonne National Laboratory
Computing and Telecommunications Division
September 1988

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering one demonstration and four computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the Computing and Telecommunications Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	September 7, 1988 (Wednesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	*Guide to Computing at ANL* (ANL/TM 336) *Recommended Documentation for Computer Users at ANL* (ANL/TM 379) *Guide to Telecommunications at ANL* (ANL/TM 422)
Instructor:	Rich Slade

USING COMPUTER-BASED TRAINING

Goals:	To provide a demonstration of how to use computer-based training (CBT) courses in CMS to allow prospective students to learn more about available CBT courses.
Length of Demonstration:	One hour
Date and Time:	September 8, 1988 (Thursday), 9:30 a.m. to 10:30 a.m.
Location:	Building 221, Room A-261
Instructor:	Dave Leibfritz

INTRODUCTION TO VAX/VMS

Goals: To learn some basic concepts of VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).

Length of Class: One 3-hour session

Date and Time: September 8, 1988 (Thursday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Instructor: Diane Lark

INTRODUCTION TO WYLBUR FOR TEXT EDITING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for MVS batch processing. To learn about the MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for batch execution.

Length of Class: One 3-hour session

Date and Time: September 12, 1988 (Monday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

NOTE: Depending on the class attendance and the needs of the attendees, CTD may offer one or more of the additional Wylbur and MVS batch computing classes later in September or October 1988.

USING VAX/VMS

Goals: To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.

Length of Class: One 3-hour session

Date and Time: September 13, 1988 (Tuesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Instructor: Diane Lark

COMPUTER-BASED TRAINING COURSES

CTD currently offers 25 different computer-based training courses in CMS and five courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	**Course Title**
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

General Data Processing Courses	
DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center
Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
PROFS Courses	
PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
SORTMRG	Using SORT/MERGE Utilities
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Course	
TSOUSE	Using TSO
SPFUSE	Using ISPF

Miscellaneous Courses
(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)

ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

☆ U.S. GOVERNMENT PRINTING OFFICE 1988 — 542-143/80002

30/5:

ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 19 **NUMBER 9** **SEPTEMBER 1988**

COMPUTING COMMENTS

Mathematics and Computer Science VAX To Be Decommissioned 2557
Laboratory Indirect Rate Increased 2557
Computing Classes Scheduled for September and October 1988 2557

MANAGEMENT INFORMATION SYSTEMS

New Management Information Systems Section in the *Newsletter* 2558
Integrated Financial System FY1989 Implementation Milestones 2558
Update on the Financial Management System 2559
Long-Range Plan Availability 2559

CMS NEWS

New and Updated Computer-Based Courses Available in CMS 2559

CRAY NEWS

Conversion Schedule for UNICOS 4.0 2560
Testing of IBM 3380 Disks on the Cray 2561
UNICOS Passwords No Longer Needed on Jobs Submitted from the VMS Cray Station 2561
UNICOS Libraries Renamed in Preparation for UNICOS 4.0 2561
NAG Mark 12 Library Available in UNICOS 2562
IMSL Library Edition 10.0 Available in UNICOS 2563
IMSL Library Edition 10.0 Compatibility with IMSL on Other ANL Systems 2564
Converting from IMSL Edition 9.2 to Edition 10.0 in UNICOS 2565

GRAPHICS NEWS

CGM Graphics Capabilities Available with Disspla and Tellagraf in VMS 2566
SAS Videotapes Available 2566

MVS NEWS

VS Fortran Version 2.3.0 of the IBM VS Fortran Compiler and Library Available for Testing in MVS Batch 2567

TELECOMMUNICATIONS NEWS

TCP/IP Access to the Cray X-MP/14 Available for General Use 2568
Planned Changes to ANL/ARPAnet Access 2568
Conversion to Domain Names and Name Servers on the Internet 2568
Plans To Upgrade to MFEnet II 2570
Upgraded Hydra Protocol Converter Available for General Use As an IBM Full Screen Emulator 2570

VAX/VMS NEWS

ANSYS Available on the Central VAX 8700 Computer 2570
Mass-11 Word Processor Version 7B Available on the Central VAX 8700 2571
New Computer-Based Instruction Course for Datatrieve Available on the VAX 8700 Computer 2571

PERSONAL COMPUTING

MacKermit Version 0.9(40) Now Available 2572
Computing and Telecommunications Helps DEP Install IAEA Network 2572

BULLETIN

Bulletin of August 5, 1988--Poll on Hydra Protocol Converter Insert Options 2572

USERS GROUP HIGHLIGHTS

Minutes of Computer Users Group Meeting Held August 2, 1988 2573
Minutes of Graphic Arts Users Group Meeting Held August 11, 1988 2574

COMPUTING CENTER STATISTICS

COMPUTING CENTER TELEPHONE NUMBERS AND SERVICE SCHEDULE

SUBJECT INDEX

APPENDIX

Computing Center Classes

DEPOSITORY
DEC 27 1988
UNIVERS
AT URBANA-CHAMPAIGN

COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
Building 221
Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Director, Computing and Telecommunications	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Networks	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Telecommunications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Information Systems	Diane Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource and Plant Services Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Material Systems	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Information Technology Resources Planning	Mike Boxberger	A245	2-5639	B34540 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Rich Slade	B139	2-7674	B32848 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 3.0, a Sun 3/280, a DEC VAX-11/750, a DEC VAX 8700, a DEC VAX 8250, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

MATHEMATICS AND COMPUTER SCIENCE VAX TO BE DECOMMISSIONED

On Friday, September 30, 1988, the Mathematics and Computer Science (MCS) Division will decommission its dual VAX 11/780 computer. MCS has replaced the VAX with approximately 40 Sun workstations that provide about 60 times the computing power for about the same cost as the original price of the DEC equipment. The Computing and Telecommunications Division (CTD) and MCS are planning alternate arrangements for ARPAnet access. (See "Planned Changes to ANL/ARPAnet Access" in this *Newsletter.)* The MCS VAX was the first machine at ANL to run Berkeley Unix and has played a major role in the MCS computing research program for the past eight years.

LABORATORY INDIRECT RATE INCREASED

The Chief Financial Officer has announced an increase in the Laboratory Indirect Rates to 23.95 percent from 23.52 percent effective July 1, 1988. This amount is deducted directly from the funding of ANL Programmatic Divisions and will be seen as an increase in the computing charges to outside users. Outside users who are funded by DOE but not by ANL will see a total charge of $123.95 for each $100.00 of computing they do. Similarly, outside users who are funded neither by DOE nor by ANL will see a total charge of $154.69.

COMPUTING CLASSES SCHEDULED FOR SEPTEMBER AND OCTOBER 1988

During September and October 1988, the Computing and Telecommunications Division will offer one demonstration, one seminar, and seven classes. The schedule is appended to this *Newsletter.* To register, call or visit the Computing and Telecommunications Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. Computing and Telecommunications will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, Cray UNICOS, and computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and to use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and to link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Introduction to Wylbur for Text Editing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and to modify programs, data, and text; to submit MVS and UNICOS batch jobs; and to review MVS and UNICOS batch output.

Using VAX/VMS (one 3-hour session) will acquaint VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

Introduction to UNICOS and Shell Programming (two 3-hour sessions) is for new users who want basic information on UNICOS and shell programming on the Cray X-MP/14 high performance computer. The class covers introductory material on the Unix file system, space management, and shell programming.

Using the Cray X-MP from the MVS Station (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS and Shell Programming" by providing examples of how to submit various Cray batch jobs from other ANL computing systems (including CMS, MVS, and VAX/VMS).

Using the Cray X-MP from the VAX Supercomputer Gateway (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the recently installed Digital Equipment Corporation (DEC) VAX station. Like the counterpart MVS station class, this class requires familiarity with UNICOS and shell programming. This class focuses on using the VAX station to access the Cray in a batch environment (although it will include some basic instruction for using UNICOS interactively).

UNICOS 4.0--What's Different (a one-hour seminar) is for current Cray UNICOS 3.0 users who want to learn about the new features and changes in UNICOS 4.0.

MANAGEMENT INFORMATION SYSTEMS

NEW MANAGEMENT INFORMATION SYSTEMS SECTION IN THE NEWSLETTER

With this issue, the *Argonne Computing Newsletter* introduces a section focused on Management Information Systems. The implementation of the Integrated Financial System (IFS) will bring about significant changes in the availability and use of financial information. The "Management Information Systems" section will provide news about such changes in administrative computing and the effects of these changes on the handling of administrative information.

INTEGRATED FINANCIAL SYSTEM FY1989 IMPLEMENTATION MILESTONES

The Integrated Financial System (IFS) project team has completed certification and configuration testing of the financial applications software licensed from Management Science America, Inc. (MSA). Cutover for IFS to production status should begin in October 1988. IFS will gradually replace the Financial Management System (FMS). Users will see new, more detailed forms and will be able to enter and to transmit financial information at a divisional or departmental level.

In July 1988, the project team began converting the files from the Financial Information System (FIS) into the new IFS format. A parallel test using approximately three months of Laboratory financial data will follow this task. If the parallel test is successful (that is, all data is processed accurately and the monthly close process can be completed according to DOE requirements), we plan to implement the MSA products according to the following schedule:

First Quarter FY1989	General Ledger Financial Controller Information Expert Reporting
Second Quarter FY1989	Accounts Payable Purchasing (for service center processing)
Third Quarter FY1989	Budgetary Control

The General Ledger application processes the journal vouchers, acts as a repository for the financial "books," and maintains a record of all transactions and balances. The Financial Controller application handles all security for the real-time applications and serves as the input mechanism for financial data from external source systems. The Information Expert Reporting tool provides an easy way for users to request financial reports. It has menu-driven screens with online HELP and eventually can be available for use on other MVS-based Laboratory systems.

The Accounts Payable application will replace the Entrex system that currently produces checks. In addition, it can process other payments against non-order and manual-order invoices and employee payables. Although the MSA Purchasing application is designed to process external purchases, we will use it for "internal purchasing," so that we can electronically process Laboratory service requests, work orders, and charges in a more efficient and timely manner. The Budgetary Control application will provide the Laboratory with the tools necessary to track obligations and costs against budget allocations in real time if desired. Currently, the ANL Administrative Policies Committee is investigating the extent to which the Laboratory should try to implement the Budgetary Control application.

Next month we will publish an article in this *Newsletter* describing some of the upcoming changes associated with the introduction of IFS.

UPDATE ON THE FINANCIAL MANAGEMENT SYSTEM

The implementation of the new Integrated Financial System (IFS) in FY1989 will affect all users of the Financial Management System (FMS). (See "Integrated Financial System FY1989 Implementation Milestones" in this *Newsletter.)* After the production cutover, some of the standard financial reports previously available in FMS will only be available through the Information Expert reporting component of IFS. The Computing and Telecommunications Division will conduct training classes early in the new fiscal year, so that FMS users are prepared to use Information Expert reporting.

LONG-RANGE PLAN AVAILABILITY

A Plan for Administrative Computing at ANL: FY1989 Through FY1991 will be available about mid-September 1988 at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). The *Plan* assesses the state of administrative computing and describes the new systems and enhancements to current systems that Laboratory-wide users can expect to see over the next three years. The *Plan* also provides guidelines for administrative computing proposals, describes the strategy and goals for administrative computing, and provides a compilation of official and unofficial systems in use at the Laboratory. The *Plan* is the eighth in a series and has created an historical record of the Laboratory's efforts to analyze and to review the administrative computing systems that affect all segments of Argonne National Laboratory.

A common document addressing planned and currently operating administrative information systems is important to the efficient operation of the Laboratory. Such a document is a resource for:

- Laboratory employees who need administrative information from either central or decentralized administrative systems.
- Organizations that need to know if an administrative system already exists that can reduce their effort in building a new system.
- Organizations and individuals who are planning computer-based administrative systems and need to know where and how they can provide appropriate automatic interfaces.
- Laboratory employees who require cost information on planned and currently operating administrative systems.
- Organizations and individuals who are planning personal computer administrative systems.

CMS NEWS

NEW AND UPDATED COMPUTER-BASED COURSES AVAILABLE IN CMS

The Computing and Telecommunications Division (CTD) has installed three new and three updated computer-based training (CBT) courses from CRWTH Computer Coursewares in CMS (see Table 1). Also, CTD has updated the CRWTH presentation program to correct some earlier difficulties reported by users.

"Office Systems Skills and Concepts" helps you understand the concept of the automated, integrated office. You will be made aware of the mainframe versus the personal computer issues and become familiar with automation functions (including electronic mail, word processing, scheduling, and document handling). You will become aware of current trends (including desktop publishing and group productivity along with data management and decision support tools). This course shows you what it is like to work in an automated office.

"Developing Data Processing Skills for End Users" shows you what data processing tools exist

Table 1: New and Updated CRWTH CBT Courses Available

New Courses

VS COBOL II: Making the Transition
CICS Concepts and Facilities
Office System Skills and Concepts

Updated Courses

Developing Data Processing Skills
  for End Users
Using DisplayWrite/370
Using SAS/Graph

and how to use these tools. You will learn what data is, what information is, how data is used, why data is edited, how reports are generated, data selection, data calculation, data sorting, and data grouping.

"VS COBOL II" describes the differences between OS/VS Cobol and VS Cobol II and what is involved in converting OS/VS Cobol programs to VS Cobol II. It shows the new VS Cobol II programming statements and the coding techniques for developing Customer Information Control System (CICS) application programs. The course provides information on the compiler and linkage editor options needed to enable VS Cobol II application programs written in OS/VS Cobol. The course takes approximately 10 hours.

"CICS Concepts and Facilities" is designed for a CICS applications programmer. The course (1) shows what a typical CICS application looks like to the end user, (2) defines the major differences between batch and online processing, and (3) shows the relationships among online programs, CICS, and the operating system. The course also teaches how (1) to manage tasks, (2) to handle program loading and the flow of control between programs, (3) to handle the communication between programs and online terminals, and (4) to control access to application data files. Also, you will learn how the screen-formatting facility called Basic Mapping Support (BMS) works, learn the steps in the CICS program development cycle, and understand the concept of the pseudo conversational transaction.

CRWTH updated "Using DisplayWrite/370" and "Using SAS/Graph" to remain technically current.

To use any of these courses, you must use either an IBM 3270-compatible display terminal or a terminal capable of using an IBM full screen emulator (such as the Hydra Protocol Converter).

To begin a CRWTH CBT course, enter:

```
CBT course
```

where "course" refers to the CBT course you wish to take. (See the CBT courseware list appended to this *Newsletter.)*

CRAY NEWS

CONVERSION SCHEDULE FOR UNICOS 4.0

The Computing and Telecommunications Division (CTD) is preparing for the installation of the UNICOS 4.0 operating system on the Cray X-MP/14. UNICOS 4.0 provides additional capability for several functional areas (including tapes, program loading [segldr], the Network Queuing System [NQS] batch scheduling, and the DS-40 disk subsystem).[1]

CTD plans to install UNICOS 4.0 on Monday, October 17, 1988, at 7:00 a.m. for a 24-hour user test. To encourage usage during this test, the weekend rates will be in effect for the 24-hour period. On Tuesday, October 18, 1988, at 7:00 a.m., CTD will purge from the queue all jobs that have not run, restart with UNICOS 3.0, and evaluate the previous day's test. If there are no major difficulties with UNICOS 4.0, it will become the production Cray operating system on Monday, October 24, 1988, at 7:00 a.m.

Some user-level differences between UNICOS 3.0 and 4.0 will affect the execution of existing jobs. To assist the Cray users with migrating to UNICOS 4.0, CTD will offer a seminar, "UNICOS 4.0--What's Different," in October 1988 that describes these differences (see "Computing Center Classes" at the back of this *Newsletter).* Many differences have already been noted in the draft of

---

[1] While Cray Research is already distributing UNICOS 4.0, CTD has elected to defer implementation until the new fiscal year. This decision will avoid needing more time for system test, avoid disruptions to the production service, and permit researchers greater availability of UNICOS service for use with FY1988 funds.

Guide to UNICOS at ANL (ANL/TM 460) and will be expanded in a new release of that document in September 1988.

TESTING OF IBM 3380 DISKS ON THE CRAY

The Computing and Telecommunications Division (CTD) is now internally stress-testing the IBM 3380 disks directly attached to the Cray X-MP/14. Several members of CTD are using the disks and evaluating the feasibility of opening this service to other users of the Cray. Meanwhile, CTD is willing to allow limited access for low-usage, small files by other users on a "use-at-your-own-risk" basis. For access information, contact either Doug Engert (extension 2-5444) or Joe Midlock (extension 2-5447).

UNICOS PASSWORDS NO LONGER NEEDED ON JOBS SUBMITTED FROM THE VMS CRAY STATION

The Computing and Telecommunications Division has enhanced the Cray Network Queuing System (NQS) and the VMS Cray Supercomputer Gateway station system so that you can submit UNICOS batch jobs through the VAX 8250 front-end station (ANLVG) from any VAX cluster node without specifying your UNICOS password.

If your VMS username and UNICOS userid contain the same badge number (Bnnnnn), you no longer have to specify a password on your NQS user identification record. That is, if your VMS username is the same as your UNICOS userid or differs from your UNICOS userid only by an account alias suffix, you can omit the password. For example, if your VMS username is of the form **Bnnnnna** ("B" followed by your badge number, optionally followed by a one-character or two-character account alias suffix) and your UNICOS userid is **Bnnnnnx**, you can code your UNICOS identification record:

```
# user=Bnnnnnx
```

If your VMS username exactly matches your UNICOS userid, you can eliminate your UNICOS userid as well, for example:

```
# user=
```

If your UNICOS userid differs from your VMS username in any other way, you must specify both your UNICOS userid and password:

```
# user=xxxxxx pw=password
```

We recommend that you revise your existing UNICOS job files stored in the central VAX cluster to remove the UNICOS password. This feature will make it more convenient to submit UNICOS jobs and will reduce the risk of compromising passwords.

UNICOS LIBRARIES RENAMED IN PREPARATION FOR UNICOS 4.0

In preparation for changes in the UNICOS 4.0 segment loader (**segldr**), the Computing and Telecommunications Division has adopted the Unix naming convention for user libraries and has copied the program product libraries and the local utility library from the /**pp** (program product) directory to the /**usr/lib** directory. The UNICOS 4.0 **segldr** will allow specifying user libraries in the command line rather than requiring a directives file. This capability is easiest to use when the libraries are named according to Unix conventions. You should convert any references to the /**pp** pathnames in your **segldr** directives files to these new pathnames. The existing libraries will continue to be available in the /**pp** directory only until we convert to UNICOS 4.0. After the conversion to UNICOS 4.0, only the new library pathnames will be valid. Table 2 identifies products and pathnames. For guidance in specifying libraries to the UNICOS segment loader, refer to the draft of *Guide to UNICOS at ANL* (ANL/TM 460), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

Table 2: Library Pathnames

Program Product	Library Pathname
`Disspla Graphics`	`/usr/lib/libdisspla.a`
`NAG Math Library`	`/usr/lib/libnag.a`
`IMSL MATH/Library`	`/usr/lib/libimslmath.a`
`IMSL STAT/Library`	`/usr/lib/libimslstat.a`
`IMSL SFUN/Library`	`/usr/lib/libimslsfun.a`
`IMSL 9.2 interface`	`/usr/lib/libimsl92.a`
`ANL Utility Library`	`/usr/lib/libanlutil.a`
`SLATEC Library*`	`/usr/lib/libslatec.a`
`Misc. Math Library*`	`/usr/lib/libmath.a`

* Implementation deferred.

To minimize the impact of duplicate-named members in the International Mathematical and Statistical Libraries (IMSL), the Numerical Algorithms Group (NAG) library, the SLATEC library, and the default Cray libraries, we have modified the library shell variables as tabulated below. By including the appropriate Cray default libraries before the program product libraries, we ensure that you will obtain the fastest optimized versions of duplicate routines. If you use these shell variables to specify your libraries, you will receive many "DUPLICATE ENTRY" diagnostics from the segment loader. If you find these messages troublesome, add the following directive to your **segldr** directives file:

```
DUPENTRY=IGNORE
```

Table 3: Shell Variables

Shell Variable	Libraries Designated by Shell Variable
$DISLIB	/usr/lib/libdisspla.a
$NAG	/lib/libsci.a,/usr/lib/libnag.a
$IMSL	/lib/libsci.a,/usr/lib/libimslmath.a, /usr/lib/libimslstat.a
$ANLUTIL	/usr/lib/libanlutil.a
$SLATEC*	/usr/lib/libslatec.a

* Implementation deferred.

NAG MARK 12 LIBRARY AVAILABLE IN UNICOS

The Numerical Algorithms Group, Ltd. (NAG) Mark 12 version of the NAG Fortran library is now available as a single precision **bld** library in UNICOS on the Cray X-MP/14. The complete UNICOS pathname of the NAG Fortran library is **/usr/lib/libnag.a**. The Computing and Telecommunications Division (CTD) has installed the NAG library in comparable precision (roughly 15 decimal digits) on all ANL central computing systems--double precision on the central IBM 3033 systems (MVS and CMS) and on the central VAX 8700 system and single precision on the Cray X-MP/14.

In the Mark 12 version, NAG has modified 35 of the linear algebra routines to make effective use of the vector processing features of Cray processors. Many other NAG library routines use these modified routines directly or indirectly and benefit from this improvement in performance. Some of these NAG routines duplicate more highly optimized versions in the default Cray library, **/lib/libsci.a**, which is normally searched by the segment loader (**segldr**) only after user-specified libraries. To obtain Cray's optimized versions of these duplicate routines, you must direct the segment loader to search the Cray library before the NAG library (see below).

You can refer to the NAG library by using the locally defined **$NAG** shell variable in a **segldr LIB** directive. The **$NAG** shell variable specifies both the default Cray **/lib/libsci.a** library and the NAG library, in that order. With this technique, the segment loader will search the Cray library twice, once just before the NAG library and once by default, after all user-specified libraries. This double search will cause the segment loader to generate many "DUPLICATE ENTRY" caution messages; you may suppress these messages with a **DUPENTRY=IGNORE** segment loader directive. For example, to link the NAG library to your Fortran program and to suppress all duplicate entry messages, use:

```
LIB=$NAG,...other libraries
DUPENTRY=IGNORE
(other segldr directives)
EOF
cft -dp -eLS prog.f
segldr prog.o segdir
```

After CTD installs UNICOS 4.0, you will be able to eliminate the segment loader directives file with:

```
segldr prog.o -lsci,nag -D "DUPENTRY=IGNORE"
```

For additional information on linking Fortran programs with the NAG library and other program product libraries, see Chapter 5 in the draft of *Guide to UNICOS at ANL* (ANL/TM 460). This *Guide* is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). The NAG library routines are documented in *NAG Fortran Library Manual Mark 12* (seven volumes), *NAG Fortran Library Manual Mark 12* (microfiche), and *NAG Fortran Mini-Manual Mark 12*. Because of their cost, CTD does not stock the NAG manuals at the Document Distribution Counter. However, we will order these manuals on request. The NAG Mark 12 library is also documented online in the central ANLCV1 VAX/VMS system. Enter (in VMS):

```
HELP @NAG
```

IMSL LIBRARY EDITION 10.0 AVAILABLE IN UNICOS

The International Mathematical and Statistical Libraries (IMSL) Edition 10.0 is now available in UNICOS on the Cray X-MP/14. IMSL Edition 10.0 is a major revision of the IMSL library, containing enhancements and additions in many areas. New routines with new names and different calling parameters have replaced most of the routines from prior IMSL editions. If you have existing applications that use prior editions of IMSL library routines, see "Converting from IMSL Edition 9.2 to Edition 10.0 in UNICOS" in this *Newsletter.*

The Computing and Telecommunications Division (CTD) has installed the IMSL Edition 10.0 library as three separate **bld** libraries in UNICOS. Table 4 shows the three libraries that comprise IMSL Edition 10.0 and their UNICOS pathnames (see also "UNICOS Libraries Renamed in Preparation for UNICOS 4.0" in this *Newsletter).*

Table 4: IMSL Libraries and Pathnames

IMSL 10.0 Library	Library Pathname
MATH/LIBRARY Version 1.0	/usr/lib/libimslmath.a
STAT/LIBRARY Version 1.0	/usr/lib/libimslstat.a
SFUN/LIBRARY Version 2.0	/usr/lib/libimslsfun.a

Table 5 lists the contents of each library. We have installed only the single-precision IMSL library routines in UNICOS.

The IMSL Edition 10.0 library includes an extended set of carefully coded basic linear algebra subroutines (BLAS) that effectively use the vector processing features of Cray computers. Many IMSL library subprograms use these vectorized BLAS routines directly or indirectly and benefit from this optimized performance. Many of these BLAS routines duplicate even more highly optimized BLAS versions in the default Cray library, **/lib/libsci.a.** Similarly, the IMSL SFUN/LIBRARY includes versions of all the standard Fortran intrinsic mathematical functions (for example, sin and sqrt), which duplicate more highly optimized versions in the default Cray Fortran library, **/lib/libf.a.** To obtain Cray's optimized versions of these duplicated routines, you must direct the segment loader to search the appropriate Cray libraries before the IMSL libraries.

Table 5: Contents of IMSL Library

IMSL Library	Contents
MATH	Subprograms for the solution of linear systems, eigensystem analysis, interpolation and approximation, integration and differentiation, ordinary and partial differential equations, Fourier and Laplace transforms, nonlinear equations, unconstrained and constrained optimization, basic matrix/vector operations, and related utility routines.
STAT	Subprograms for computing basic statistics, regression models, measures of correlation, analysis of variance, categorical and discrete data analysis, nonparametric statistics, tests of goodness of fit and randomness, time series analysis and forecasting, covariance and factor analysis, discriminant analysis, cluster analysis, sampling, survival analysis, reliability testing, multidimensional scaling, density and hazard estimation, probability distribution functions, random number generators, line printer graphics for statistical data analysis, and related utility routines.
SFUN	Subprograms for computing elementary, trigonometric, hyperbolic, gamma, error, Bessel, Kelvin, and related functions; exponential and elliptical integrals; probability distribution functions and inverses; and miscellaneous series.

You can refer to the IMSL libraries by their full UNICOS pathnames (see Table 4) in a **segldr LIB** directive. To ensure that the **segldr** will load the Cray-provided versions of routines that also appear in the IMSL libraries, specify the appropriate Cray library pathnames in your **segldr LIB** directive in the order:

```
LIB=/lib/libsci.a,/usr/lib/libimslmath.a
LIB=/lib/libsci.a,/usr/lib/libimslstat.a
LIB=/lib/libf.a,/usr/lib/libimslsfun.a
```

Alternatively, you can use the **$IMSL** shell variable to specify the IMSL MATH and STAT libraries. (There is no shell variable for the SFUN library.) The **$IMSL** shell variable specifies the Cray **/lib/libsci.a** library, the IMSL **/usr/lib/libimslmath.a** library, and the IMSL **/usr/lib/libimslstat.a** library (in that order), which ensures you will get the optimal Cray versions of duplicate routines.

With the **$IMSL** shell variable, the **LIB** directive reduces to:

```
LIB = $IMSL
```

This usage has the minor disadvantage that the **segldr** will always search both IMSL libraries, although usually only one of them is necessary.

With the above techniques, the segment loader will search the specified Cray library twice, once just before the IMSL library and once by default, after all user-specified libraries. This double search will cause the segment loader to generate many "DUPLICATE ENTRY" caution messages; you may suppress these messages with a segment loader **DUPENTRY=IGNORE** directive. For example, to link your Fortran program and to suppress all duplicate entry messages, use:

```
cat <<EOF> segdir
LIB= ... libraries
DUPENTRY=IGNORE
(other segldr directives)
EOF
cft -dp -eLS prog.f
segldr prog.o segdir
```

After CTD installs UNICOS 4.0, you will be able to replace most segment loader directive files with new **segldr** command line options. The UNICOS 4.0 **segldr -l** option will allow you to specify your library search list, and the **-D** option will allow you to enter arbitrary **segldr** directives on the command line. You can abbreviate libraries named **/lib/lib**name or **/usr/lib/lib**name to just "name" on the **segldr** command line:

```
segldr prog.o -lsci,imslmath -D "DUPENTRY=IGNORE"
segldr prog.o -lsci,imslstat -D "DUPENTRY=IGNORE"
segldr prog.o -lf,imslsfun -D "DUPENTRY=IGNORE"
segldr prog.o -l$IMSL -D "DUPENTRY=IGNORE"
```

These **segldr** enhancements reduce the importance of library shell variables in UNICOS 4.0. CTD does not plan to introduce any new library shell variables beyond those we have already announced.

For additional information on linking Fortran programs with the IMSL libraries and other program product libraries, see the draft of *Guide to UNICOS at ANL* (ANL/TM 460), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). The IMSL Edition 10.0 library is documented in the *MATH/LIBRARY User's Manual* (Volumes 1-3), the *STAT/LIBRARY User's Manual* (Volumes 1-3), and the *SFUN/LIBRARY User's Manual*. Because of their cost, CTD does not stock these manuals at the Document Distribution Counter. However, we will order these manuals on request. You may also use the User Library reference copies of these manuals in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142B).

IMSL LIBRARY EDITION 10.0 COMPATIBILITY WITH IMSL ON OTHER ANL SYSTEMS

We have installed IMSL Edition 10.0 in UNICOS on the Cray X-MP and in VMS on the VAX 8700. Presently, we have installed IMSL Edition 9.2 in MVS and CMS on the IBM 3033 computers. We will soon install IMSL Edition 10.0 in MVS and CMS as a test version. Until then, use the techniques in "Converting from IMSL Edition 9.2 to Edition 10.0 in UNICOS" in this *Newsletter* to maintain programs that are portable between UNICOS, MVS, and CMS.

We have installed only the single-precision IMSL library routines in UNICOS. By comparison, we have installed only the double-precision IMSL routines on the central IBM 3033 (MVS and CMS) systems and both the single-precision and double-precision IMSL routines on the central VAX 8700 system. (Single-precision floating point on the Cray is roughly equivalent to double-precision floating point on the IBM and VAX computers; they all provide roughly 15 decimal digits). IMSL single-precision routines have different names from the corresponding IMSL double-precision routines.

To maintain a single version of a Fortran program that uses IMSL library routines for use on the IBM, VAX, and Cray computers, do the following:

1. Restrict your program to the ANSI Fortran 77 standard. If you must use vendor extensions to Fortran, isolate these extensions in a few easily replaced subprograms.
2. Write your program (or at least the part that references the IMSL libraries) with double-precision variables, constants, and IMSL subprogram names. Use "generic" names to reference intrinsic Fortran functions.
3. Compile your program as is on the VAX and IBM systems. But on the Cray, use the **-dp** option of the **cft** and **cft77** compilers to map all double-precision parameters, constants, variables, and intrinsic function references to their single-precision equivalents.

4. In UNICOS, use the **segldr EQUIV** directive to map references to double-precision IMSL library functions to their single-precision equivalents:

   ```
   EQUIV=spname(dpname),...
   ```

   It is only necessary to map the names of IMSL routines you call directly from your Fortran program.

For example, assume Fortran program **sample.f** (which you run on IBM, VAX, and Cray computers) requires a gamma function. Write the program so that it references DGAMMA (the double-precision version) from the IMSL SFUN/LIBRARY. DGAMMA is available in the IBM and VAX versions of the IMSL library, but you must map it to its single precision equivalent, GAMMA, on the Cray. The following example achieves the portability requirement with no changes to the Fortran source:

```
cat <<EOF> segdir
EQUIV=GAMMA(DGAMMA)
LIB=/lib/libf.a,/usr/lib/libimslsfun.a
DUPENTRY=IGNORE
EOF
cft -dp -eLS sample.f
segldr sample.o segdir
```

CONVERTING FROM IMSL EDITION 9.2 TO EDITION 10.0 IN UNICOS

IMSL Edition 10.0 is a major revision of the IMSL library. Entirely new routines with new subroutine and variable names, new data structures, new argument lists, different error-handling procedures, and workspace allocated from COMMON instead of from user-provided arrays have replaced most of the routines from prior IMSL editions. To emphasize the departure from prior IMSL editions, IMSL uses the designation Version 1.0 for the MATH/LIBRARY and STAT/LIBRARY and Version 2.0 for the SFUN/LIBRARY.

Although the Edition 10.0 library routines are generally easier to use than those in Edition 9.2, certain changes may be necessary in your programs. IMSL has provided a library of interface routines to help you make a smooth transition from Edition 9.2 to the new library routines. Computing and Telecommunications has installed the interface routines in **bld** library **/usr/lib/libimsl92.a** in UNICOS. The interface routines have the same names and argument lists as the Edition 9.2 routines. When you reference an Edition 9.2 routine, the interface routine will attempt an equivalent result by calling one or more Edition 10.0 routines and by performing additional computations, if necessary. Because this library interface sacrifices efficiency to achieve a one-to-one relationship with the Edition 9.2 routines, you should make a complete conversion to the new library routines when such a conversion is practical.

Refer to the Edition 9.2 interface library by its full UNICOS library pathname in a **segldr LIB** directive prior to the IMSL edition 10.0 library(s) you require. For example, to link a Fortran program that contains references to IMSL Edition 9.2 statistical routine DAMEANS and to suppress all duplicate entry messages, use:

```
cat <<EOF> segdir
EQUIV=AMEANS(DAMEANS)
LIB=/usr/lib/libimsl92.a,/lib/libsci.a,/usr/lib/libimslstat.a
DUPENTRY=IGNORE
(other segldr directives)
EOF
cft -dp -eLS prog.f
segldr prog.o segdir
```

Here, we used the **EQUIV** directive to change the DAMEANS reference to its single-precision equivalent, AMEANS, and we placed the Cray default **/lib/libsci.a** library before the STAT/LIBRARY in the search order to obtain the most highly optimized Cray versions of routines that also appear in the IMSL library. After we install UNICOS 4.0, you will be able to eliminate the segment loader directives file with the following:

```
segldr prog.o -lsci,imsl92,imslstat \
-D "EQUIV=AMEANS(DAMEANS);DUPENTRY=IGNORE"
```

The library interface routines and the differences between IMSL Edition 9.2 and Edition 10.0 are documented in *IMSL Libraries Edition 10.0 Update Guide*, available in mid-September at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy.) If there is any doubt about the relationship between Edition 9.2 and Edition 10.0 routines, you should review the source code of a library interface routine to find the changes required by the new library routine. The Fortran source files for the interface routines are in the UNICOS archive file **/usr/lib/libimsl92.f.** To list an individual Edition 9.2 interface routine to standard output, use:

```
ar -p  /usr/lib/libimsl92.f routine.f
```

To copy an individual Edition 9.2 interface routine to your current working directory, use:

```
ar -xv /usr/lib/libimsl92.f routine.f
```

GRAPHICS NEWS

CGM GRAPHICS CAPABILITIES AVAILABLE WITH DISSPLA AND TELLAGRAF IN VMS

The Computer Associates (CA) CGM (Computer Graphics Metafile) utility is now available in VMS. CA follows the ANSI standard X3.122-1986 for creating and interpreting CGM metafiles. CGM metafiles can be created by a graphics program on a computer, transferred over a network, and edited or postprocessed on another workstation or computer.

The CA CGM utility consists of two parts. The first part, the generator, produces CGM files from either Tellagraf or Disspla. The second part, the translator, reads the CGM files and produces output for selected graphics devices. You can plot a CGM file on any of the graphics devices maintained by the Computing and Telecommunications Division.

VMS Tellagraf users can create graphics by identifying their graphics terminal as the primary device and by selecting CGMTAG as the secondary device. When you've created a satisfactory picture on your terminal, use the **SEND** command to create a CGMBOUT.DAT file on your current directory. Then you can invoke the **HARDCOPY** command to produce a viewgraph, slide, or paper plot; or you can transfer the CGMBOUT to another computer (for example, an IBM Personal Computer with SuperImage) for editing and enhancement.

To produce a CGM file with Disspla in VMS, include a call to the CGM device driver in your Fortran plot creation program, as in the following example:

```
CALL CGMBO(' ',0,0)
```

Disspla creates the file CGMBOUT.DAT in your current directory. You may specify a filename for the CGM output file by including the name and the number of characters in that name as arguments to the subroutine call. For example, to create a CGM file named MYCGM.DAT, enter:

```
CALL CGMBO('MYCGM.DAT',9,0)
```

Users can view the CGM file just created either by invoking the CGMPOP utility by typing CGMPOP or by creating a Disspla program that nominates some device driver (for example, CALL TEKALL) and then calls the CGM postprocessor subroutine:

```
CALL CGBPOP(' ',0,0)
```

In both cases, if you are using the default input file name, rename the CGMBOUT.DAT file to CGMBIN.DAT prior to postprocessing or include the file name in the CALL by specifying:

```
CALL CGBPOP('MYCGM.DAT',9,1)
```

Once you have created a CGM metafile, you can produce slides or paper output with the **HARDCOPY** command.

You may obtain an update for your *Tellagraf User's Manual* with the *CA-Tellagraf CGM Bulletin of Release Information on Enhancements/Fixes* (Version 6.1). The updated documents for the *CA-Disspla User's Manual* are the *CA-Disspla Update User's Manual Part F* (Version 10.5) and the *CA-Disspla Brief Bulletin of Release Information on Enhancements and Fixes* (Version 10.5). These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

SAS VIDEOTAPES AVAILABLE

The Statistical Analysis System, Inc. (SAS) has provided the Computing and Telecommunications Division with videotapes that describe their current software and how these products can be used. Part 1 of these videotapes consists of a management overview of the SAS Institute and SAS software. Part 2 of these videotapes is a more detailed technical explanation of the steps necessary to automate a multi-function end-user application.

SAS program products are available for a variety of computers (including IBM and DEC mainframes, minicomputers, and personal computers). SAS products like Base SAS, SAS/Stat, SAS/FSP, and SAS/Graph are currently installed at

Argonne in the IBM MVS and CMS operating systems and in the VAX/VMS operating system on the VAX 8700. In addition, there are approximately sixty copies of the SAS/Base and SAS/Stat software installed on IBM Personal Computers at the Laboratory.

If you are interested in viewing these tapes to assess how SAS could be applied to your research or management questions, contact Mike Thommes at extension 2-5461.

MVS NEWS

VS FORTRAN VERSION 2.3.0 OF THE IBM VS FORTRAN COMPILER AND LIBRARY AVAILABLE FOR TESTING IN MVS BATCH

Version 2.3.0 of the IBM VS Fortran program product is now available for testing in MVS batch. The version of VS Fortran in current production in MVS is Version 1.5.1. Version 2 of VS Fortran is IBM's latest version of this compiler and library. There are many new features in Version 2 that are useful for debugging and optimizing programs (even programs written for non-IBM systems) and for converting existing non-IBM Fortran programs to use in MVS batch. The major new features in Fortran Version 2 are:

- The intercompilation analyzer (ICA) can detect incompatibilities between separate program units (for example, subroutine argument mismatches). No other Fortran compiler available at ANL does this type of checking.
- The compiler will vectorize Fortran source and provide helpful information for producing Fortran statements that will vectorize. Although the object code will run only on an IBM 3090 vector processor, the compiler diagnostics may aid Cray users in vectorizing their Fortran code.
- The compiler's multitasking facility permits a single program to use simultaneously more than one processor of a multiprocessor or attached processor configuration. Although intended primarily for IBM 3090 and IBM 308x multiprocessors, such programs can use both processors of the ANL yellow IBM 3033-AP computer (S33A) simultaneously for a reduction in program elapsed time.
- The compiler permits design of programs that dynamically allocate external datasets without MVS JCL statements. This feature requires care by the programmer and reduces the portability of the resultant program but is a significant aid to end users of programs with complex file requirements.

VS Fortran Version 2 contains many extensions to the ANSI Fortran standard. Generally, you should avoid these extensions in new programs you write if you ever want to execute those programs on a different computer system. However, these extensions may make it easier to move an existing non-IBM Fortran program to an IBM computer. Major extensions in Version 2 that are not present in Version 1 are:

- Up to 31-character symbolic names (including underscore)
- Up to 99 statement continuation lines
- Ability to write comments on the same line as Fortran code
- A DO WHILE looping construct
- END DO as a DO loop terminator
- IMPLICIT NONE statement to require separate typing of all variables
- Execution time options (OCSTATUS and NOOCSTATUS) to modify the behavior of OPEN, CLOSE, and INQUIRE.

The library names in Version 2 have changed from those used in Version 1, and there is no longer an alternate mathematical function library (ALTLIB). Therefore, you cannot use the current "FORTVxxx" cataloged procedures. We have created new "XFORTxxx" procedures that you may use to test the new compiler. Most users who specify job or compile step regions must increase these regions for version 2; the default compile step region for the XFORTCxx procedures is 2048K. If you create permanent load modules from Version 2 object code, you must include dataset SYS1.VSF2LOAD in your execution step STEPLIB specification. For example:

```
//step     EXEC PGM=mypgm
//STEPLIB  DD   DISP=SHR,DSN=Bnnnnn.myload
//         DD   DISP=SHR,DSN=SYS1.VSF2LOAD
```

VS Fortran Version 2.3.0 is documented in *VS Fortran Version 2 Language and Library Reference* (SC26-4221) and *VS Fortran Version 2 Programming Guide* (SC26-4222), available soon at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

If there are no difficulties, the Computing and Telecommunications Division will make Version 2.3.0 the production version on Monday, October 17, 1988. At that time, we will rename the XFORTxxx cataloged procedures to FORTVxxx.

TELECOMMUNICATIONS NEWS

TCP/IP ACCESS TO THE CRAY X-MP/14 AVAILABLE FOR GENERAL USE

The Transmission Control Protocol/Internet Protocol (TCP/IP) Supercomputer Gateway to the Cray X-MP/14 computer is now available for general use. The Gateway consists of a Sun-3/280 computer with a FEI-3S VME interface from Cray Research, Inc. and TCP/IP software on the Cray. The TCP/IP nodename of the Cray is **XMP.CTD.ANL.GOV** with IP address 192.5.175.5. Onsite TCP/IP users can use the abbreviated host name **XMP**. TCP/IP local area network administrators will need to update their routing tables by inserting the nodename **SUNGATE.CTD.ANL.GOV** and IP address 192.5.170.5 of the TCP/IP gateway.

The Computing and Telecommunications Division (CTD) has provided TCP/IP Cray access for those users who are already familiar with the TCP/IP commands. CTD has no current plans to teach classes on TCP/IP usage for the Cray. UNICOS TCP/IP commands are documented in the *UNICOS User Command Reference Manual* (SR-2011) and the *TCP/IP Network User's Guide* (SG-2009). The *TCP/IP Network User's Guide* also discusses TCP/IP networking concepts; users already familiar with TCP/IP on another system need not obtain that manual. CTD will add documentation to *Guide to UNICOS at ANL* (ANL/TM 460) describing how to access UNICOS via TCP/IP. These documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

PLANNED CHANGES TO ANL/ARPANET ACCESS

Currently, ANL users can only access the Advanced Research Projects Agency network (ARPAnet) by logging onto the VAX-11/780 (ANL-MCS) located in the Advanced Computing Research Facility (ACRF); an account on ANL-MCS is necessary. Similarly, ARPAnet users can only access ANL hosts by logging onto ANL-MCS from ARPAnet. A change (planned in September 1988) will allow ANL users direct access to ARPAnet hosts without having to logon to ANL-MCS; similarly, ARPAnet users with appropriate authorization will have direct access to ANL hosts.

The VAX-11/780 computer (ANL-MCS) to which the ARPAnet interface is currently connected will be decommissioned on September 30, 1988 (see "Mathematics and Computer Science VAX To Be Decommissioned" in this *Newsletter).* The ARPAnet interface will be moved to a gateway (a Sun computer) located in the ACRF. Then ARPAnet access will be available from any host computer in the ANL Transmission Control Protocol/Internet Protocol (TCP/IP) network. Users with workstations (such as Sun workstations) or IBM Personal Computers that run the National Center for Supercomputer Applications (NCSA) emulation software are examples of these hosts. Users who used ANL-MCS only for ARPAnet access will need to move to an alternate computer (such as the VAX 8700 in the Computing and Telecommunications Division) that will have access to ARPAnet. For users who do not require file transfer capabilities, Computing and Telecommunications has now provided dial-up ports on an Annex terminal server. The terminal server provides connectivity at speeds up to 19,200 bits per second (bps) by using Asynchronous Data Interfaces (ADIs) via the Private Branch Exchange (PBX) and at speeds of 300, 1200, or 2400 bps by using analog modems. The telephone number for the terminal server is 2-5588.

CONVERSION TO DOMAIN NAMES AND NAME SERVERS ON THE INTERNET

Many major research institutions, universities, and government laboratories, including the National Science Foundation (NSF), the Department of Energy (DOE), and the National Aeronautics and Space Administration (NASA), have implemented networks based on the Transmission Control Protocol/Internet Protocol (TCP/IP) protocols. The resulting collection of these networks, such as ARPAnet (non-Department of Defense research facilities), MILnet (Department of Defense military installations), and NSFnet (National Science Foundation funded universities and computing centers) is called the Internet. Argonne connects to the Internet via a MILnet connection to a computer in the Mathematics and Computer Science (MCS) Division.

TCP/IP networks identify host computers with unique 32-bit integer addresses. In the past, hosts had to maintain tables that mapped the 32-bit address of each host to names by which users referred to the various hosts with which they wanted to communicate. A master list of addresses, host names, and alias names was maintained by the Stanford Research Institute (SRI). By the mid 1980s, the number of officially registered names and aliases had grown to an unmanageable number (nearly 10,000). To distribute responsibility for updating and maintaining host address information, the Internet began to implement the concept of a hierarchical name structure called domain names.

The object of the domain structure is to enable distributed name servers to manage and to resolve host addresses. Because of the hierarchical nature of the domain name structure, distributed name servers resolve addresses only for the domain(s) they manage. Not all Internet sites have converted to the new domain name format.

Old Internet addresses with single-level host names are gradually being phased out. New domain style network addresses have the form:

`host-level.site-level.top-level`

The top-level domains defined are:

- GOV (Government): Any government-related domains.
- EDU (Education): Any education-related domains.
- COM (Commercial): Any commercial-related domains.
- MIL (Military): Any military-related domains.
- NET (Networks): Any network domains (for example, CS.NET).
- ORG (Organization): Any other domains (mainly non-commercial).
- Countries: The English two-letter code (alpha-2) identifying a country according to the International Standards Organization (ISO) Standard "Codes for the Representation of Names of Countries." For example, Denmark is "DK" and Canada is "CA."
- Multi-Organizations: A multi-organization, which might be a top-level domain if it is large and is composed of other organizations.

The lower level domains usually relate to a particular organization, its structure, and hosts within the organization. The actual number of domain levels and the structure may vary from site to site.

The Computing and Telecommunications Division (CTD) is implementing a domain structure for Argonne and is currently testing a domain name service on a Sun host that will be able to communicate with other Internet name servers.

ANL has adopted the Internet domain naming conventions that identify network addresses. Computers on the ANL TCP/IP network will have an address of the form:

`host.division.ANL.GOV`

Table 6 shows the domain style address for the central services. Users on ANL TCP/IP network hosts can also refer to the central services in Table 6 by the host-level name (for example, ANLVM or XMP).

Users with workstations on the ANL TCP/IP network can register their workstations with the name server operated by CTD by calling extension 2-7236.

Table 6: Domain Style Addresses for Central Services

Service	Domain Name	IP Number
CMS	ANLVM.CTD.ANL.GOV	192.5.170.2
Cray UNICOS	XMP.CTD.ANL.GOV	192.5.175.5
VAX 8700	ANLCV1.CTD.ANL.GOV	192.5.170.3
VAX-11/750 (MFE Gateway)	ANLVMS.CTD.ANL.GOV	192.5.170.1

PLANS TO UPGRADE TO MFENET II

The Computing and Telecommunications Division (CTD) staff is working with the National Magnetic Fusion Energy Computer Center (NMFECC) staff to prepare for the migration of the Magnetic Fusion Energy network (MFEnet) to the new MFEnet II network. In August 1988, the dedicated 56 kilobits per second data communications link between Argonne and Lawrence Livermore Laboratory (LLL) was reassigned to MFEnet II. Also, in August 1988, a new 56 kilobits per second data communication link between Argonne and Oak Ridge National Laboratory (ORNL) was installed and is now the primary route for communicating with NMFECC via MFEnet. A 9.6 kilobits per second backup data communication link connects Argonne to ORNL for MFEnet. All traffic on MFEnet now passes through ORNL and then via a 56 kilobits per second satellite channel to the NMFECC.

The DOE Office of Energy Research (OER) under the management of the OER Scientific Computing staff has initiated a new effort in data communications networking designated the Energy Sciences network (ESnet). The ESnet concept is intended to bring together the various data communication efforts of the different research programs funded by OER into a single effort. The goal of ESnet is to combine MFEnet, the High Energy Physics network (HEPnet), and other data communications funded by OER into a single network that would use protocols being developed by the International Standards Organization for Open Systems Interconnect. A phased implementation of ESnet is planned. The NMFECC staff is now upgrading MFEnet with a new protocol. The project is labeled MFEnet II, and the new protocol will be the Internet Protocol (IP). The ESnet plan is to support the IP protocol being implemented for MFEnet II and eventually to use MFEnet II as the backbone for ESnet.

Argonne users (especially interactive and graphics users) of the MFEnet will temporarily experience degraded service until MFEnet II becomes fully operational in FY1989. The satellite delay on all traffic through ORNL is causing appreciable increases in the response times for users. File transfers over MFEnet are taking longer to complete. CTD staff is working with NMFECC staff to optimize the satellite link data transfers by reconfiguring MFEnet equipment located at Argonne to allow better data buffering. Optimistically, Argonne users should receive about 65 percent of the performance experienced before the August 1988 changes. Future *Newsletter* articles about MFEnet II will appear as users begin to test the network.

UPGRADED HYDRA PROTOCOL CONVERTER AVAILABLE FOR GENERAL USE AS AN IBM FULL SCREEN EMULATOR

On Monday, August 15, 1988, the Computing and Telecommunications Division (CTD) installed the upgraded Hydra Protocol Converter for full screen emulation with the CMS, CICS, Wylbur, and TSO interactive services.

The recent poll taken to determine user preference on the Insert Mode feature indicated that most users (37 to 27) preferred keeping the old implementation of the Insert Mode feature. Consequently, the upgraded Hydra will retain the same Insert Mode characteristics as before.

VAX/VMS NEWS

ANSYS AVAILABLE ON THE CENTRAL VAX 8700 COMPUTER

The ANSYS Structural Analysis Program (Version 4.3A) from Swanson Analysis System, Inc., is now available on the central VAX 8700 computer. To use ANSYS, users must first issue the command:

```
$ SETUP ANSYS
```

Available ANSYS programs include:

ANSYS	A program that performs engineering analyses with the finite element method.
PLOT33I	A program that interactively displays plots to selected graphics terminal devices by processing ANSYS FILE33.DAT files.
TRAN33	A program that reads FILE33.DAT and rewrites it to TRAN33.DAT to minimize the number of times a color is set.

PLOTHP	A program that is a version of PLOT33 that works with HPGL graphics devices.

The Computing and Telecommunications Division (CTD) is enhancing the PLOT33 program to create CGM graphic metafiles from ANSYS output. CGM metafiles can be postprocessed with the VAX **HARDCOPY** command for output to central graphics devices (for example, the Matrix camera, the CalComp 5835 plotter, distributed Apple LaserWriters, and the high-resolution Linotype L300P typesetter).

Swanson Analysis Systems, Inc., requires a royalty charge of $0.041 per Central Processing Unit (CPU) second with a guaranteed minimum monthly usage charge for the VAX license. CTD must recover these costs from ANSYS users. When usage does not cover the minimum monthly charge, CTD plans to collect a higher rate per CPU second ($0.20). ANSYS users should inform CTD of their anticipated usage so that CTD can plan for appropriate reductions in the CPU second rate.

The "ANSYS Execution Guide" *(ANSYS User's Manual,* Appendix S), Revision 4.3A, VAX/VMS version, is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). We will order ANSYS reference manuals only on request.

MASS-11 WORD PROCESSOR VERSION 7B AVAILABLE ON THE CENTRAL VAX 8700

Mass-11 (a menu-driven word processor developed by Microsystems Engineering Corporation) is now available on the central VAX 8700 computer. You can produce simple letters, technical documents containing occasional Greek symbols or equations, multi-column text, statistical tables with calculation capability, and redlined documents. Please note that Greek symbols from the Mass-11 technical character set will appear on your screen as Greek symbols only if you use a VT200 or compatible terminal. To access Mass-11 Version 7B, enter (at the DCL prompt):

```
$ SETUP MASS11
```

To invoke the program, enter:

```
$ MASS11
```

You can use Mass-11 Version 7A by eliminating the step with the **SETUP** command. On Monday, September 19, 1988, the Computing and Telecommunications Division will remove Version 7A from the system. Your files are upward-compatible. In other words, you can use your files created by using Version 7A with Version 7B.

It is possible to define output devices located in your building for printing Mass-11 documents. For more details, refer to "Central VAX Cluster Remote Printer Service Available" in the July 1988 *Newsletter.*

MASS11 Word Processing, a vendor-written manual for Version 7B, is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

NEW COMPUTER-BASED INSTRUCTION COURSE FOR DATATRIEVE AVAILABLE ON THE VAX 8700 COMPUTER

The Computing and Telecommunications Division has installed a new computer-based instruction course, "Datatrieve for Programmers" (DTRPCAI), on the central VAX 8700 computer. You can learn how to create a database with Datatrieve and, at a programmer's level, learn how (1) to design complex data structures, (2) to develop Datatrieve programs, (3) to use Datatrieve together with other programming languages, and (4) to use it with other VAX data manipulation systems. To invoke this online training course, enter (at the DCL prompt):

```
$ RUN DTRPCAI
```

Another CAI course, "Datatrieve for Users" (DTRCAI), which is an introduction to Datatrieve for general users, is also available on the central VAX 8700 computer. To access this online training course, enter (at the DCL prompt):

```
$ RUN DTRCAI
```

To run any of the CAI courses, you must use a Digital full screen or compatible terminal. These courses are menu-driven and require several hours to complete. (See the CBT courseware list appended to this *Newsletter.)*

PERSONAL COMPUTING

MACKERMIT VERSION 0.9(40) NOW AVAILABLE

The MacKermit Version 0.9(40) file transfer and terminal emulation program is now available for Apple Macintosh computers. It will run on all Apple Macintosh computers except the original 128K models. (For 128K Apple Macintoshes, we will continue to distribute MacKermit 0.8(34) in a separate folder on the MacKermit diskette.)

Version 0.9(40) has the following new features:

- Long packets: This feature allows a greater effective transfer rate by reducing the overhead of packet header information. It is especially useful with ADIs at 9600 and 19.2K baud.
- Session logging: The user can log both the terminal session and the transactions to disk files. In addition, the user can dump the current text screen to the session log.
- MultiFinder: MacKermit will now run under the MultiFinder.
- Mouse positioning cursor: By placing the mouse over the desired location on the text screen and clicking, MacKermit will issue the necessary "arrow keys" to move the text cursor to that position.
- Extended keyboard: MacKermit recognizes keys on the extended keyboard available on the Apple Macintosh II and SE. Additional key files provided locally map the extended keyboard for the Hydra.
- Command keys: The user may invoke menu commands by pressing two corresponding command (clover) keys. Combinations are listed in each menu.
- Key definitions: The key definition program is now part of the main MacKermit program; no additional program is necessary.

CTD is providing key mapping files for both versions of MacKermit (with normal or extended keyboards) for use with the Hydra Protocol Converter (normal or extended keyboards), the VAX 8700, the X.25, and SIM3278.

MacKermit is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

COMPUTING AND TELECOMMUNICATIONS HELPS DEP INSTALL IAEA NETWORK

In August 1987, the Division of Educational Programs (DEP) requested technical assistance from the Computing and Telecommunications Division (CTD) to acquire and to install a personal computer local area network for the International Atomic Energy Agency (IAEA) in Vienna, Austria. The Department of Technical Cooperation of the IAEA will use the personal computer-based local area network to extend several database systems and applications for tracking projects and requests for assistance.

During the last year, CTD and DEP have worked with the IAEA to define the requirements and to select and to obtain the equipment in the United States. Argonne purchased and tested IBM PS/2 computers, IBM Token Ring local area network equipment, and 3Com local area network servers and software before shipping them to Austria. CTD staff members have traveled to Vienna to lead the installation. The U.S. Department of State (through DOE) funds the U.S. assistance of the IAEA Technical Cooperation Program (through Argonne).

BULLETIN

BULLETIN OF AUGUST 5, 1988

POLL ON HYDRA PROTOCOL CONVERTER INSERT OPTIONS

The Computing and Telecommunications Division (CTD) is planning to upgrade the Hydra Protocol Converter on Monday, August 15, 1988. (See *Argonne Computing Newsletter,* July issue, "Upgraded Hydra Protocol Converter Available for Testing.") The Hydra Protocol Converter enables ASCII terminal users and personal computer users running an ASCII terminal emulator program to use the full screen editing features of CMS, Wylbur, TSO, and CICS interactive services. CTD is soliciting user input regarding the Hydra Protocol Converter service. People who do not use this service can simply discard this notice.

The new Hydra Protocol Converter has an installation option that, if implemented, would change the emulation of the IBM 3277 Insert mode feature. A real IBM 3277 terminal will not permit you to insert characters in a line filled with non-null characters. This prevents you from inadvertently shifting characters off the terminal screen. The current Hydra emulation lets you insert characters anywhere on the screen; characters shifted off the terminal screen are lost. Discussion at the August 2, 1988, Computer Users Group Meeting showed that users were divided on which Insert mode option CTD should implement on the new Hydra Protocol Converter. The CUG has requested that CTD poll the computer users so that the action taken will satisfy the majority of users. Please circle one of these two alternatives and mail this notice back to the address indicated below.

Alternatives:

1. Keep the previous Hydra Insert Mode operation, which is often convenient but may cause some users to inadvertently lose text or data whenever characters shift off the screen.

2. Implement the Insert Mode Option that behaves like a real IBM 3277 terminal; though some editing flexibility may be lost, users are protected against inadvertent loss of data.

Comments:

____

Please return by August 11, 1988 to:

User Services Consulting Office
Building 221
Room A-139

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD AUGUST 2, 1988

The chairperson, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:05 p.m.

Considerations for FY1989 Rates. Mike Boxberger (Computing and Telecommunications) reported on computer rates for the 1989 fiscal year. The primary discussion concerned an Incentive Plan to take the place of the current Floors system.

With the Incentive Plan, the Laboratory would establish a pool from Laboratory indirect funds to subsidize the CTD budget partially, if CTD did not achieve full cost recovery. At the beginning of the fiscal year, the Laboratory will increase the indirect rate to fund the pool. Each cost center would have a "base level" established for computing charges based on the May and June FY1988 computing by that cost center. If a cost center exceeds its base level in FY1989, the cost center would receive an "incentive fee" of $0.35 for each dollar above the base level.

As part of this process, CTD will adjust the rates on the computers and peripherals to make cost and recovery more consistent with one another under the Laboratory's full cost recovery system. Each major system should recover its own costs. Mike provided an estimate of tentative rate changes, but emphasized that these changes are preliminary: Cray rates may increase by 20 to 40 percent, IBM rates may decrease by 10 to 20 percent, VAX rates will probably remain constant, and Peripheral Services rates may increase 20 to 40 percent.

The tentative schedule for implementing these changes is:

August 12, 1988	CTD's internal budget review
August 19, 1988	Cost of service comparisons
August 19, 1988	Equilibrium cost recovery models
August 26, 1988	Cost/Recovery comparison
August 26, 1988	Rate Structure discussions with PACT and the Computing Policy Committee
September 9, 1988	Division rate structure impact comparison
September 9, 1988	Rate structure to the Chief Financial Officer for approval
September 23, 1988	Rate table revision

Questions were asked about the current discrepancy between scheduling and the cost of service. Jobs charged at the same rate at night or on weekends run at different times, depending on the job class with which they are submitted. Mike said the Systems Section would have to address the scheduling question, but his charts did show a differential between different services that provided similar results. Part of the rate changes will reduce these differentials and possibly those between night and day and expedited and regular service. There is a need to look at the scheduling as compared to cost and class to avoid user conflicts in the future.

Cray X-MP Utilization and Update. Joe Midlock (Computing and Telecommunications) began a review of current Cray experiences. This review turned into a discussion of the Cray outage that resulted from the extraordinarily high summer temperatures and humidity. Gary Schlesselman (Computing and Telecommunications) reported that the Cray had been down since about 10:30 a.m. on Monday, August 1, 1988, because of a high dew point in the computer room. Because of the Cray cooling system, a maximum dew point of 55 degrees is allowable to avoid water condensing on the cooling coils. While Cray technicians had found water on the subflooring under the computer over the past couple of weeks, it was not until Monday that they found water dripping on components within the computer itself. The Cray engineer shut the system down. The environmental system for the computer room has been adjusted to its maximum output and still cannot keep the dew point below the required value for the Cray. CTD is studying ways to produce a localized area of lower humidity around the Cray. After a weather change, the Cray resumed service on Wednesday, August 3, 1988. Since then we have installed an enclosure around the Cray and an auxiliary dehumidifier that keep the Cray's environment properly controlled.

Joe reported that before the Cray outage operators had not run some overnight and weekend work because of heavy Cray usage. Overnight and weekends, about 80 percent of the wall-clock time is charged to users (essentially 100 percent utilization), with about 60 percent (essentially 75 percent utilization) during the days. CTD is studying the scheduling parameters to make the Cray more efficient. During off hours, there are frequently large, long jobs competing for resources, thereby producing large swap times.

Cray will ship UNICOS 4.0 on or about August 5, 1988. CTD has received the manuals and is reviewing them to determine the impact to users. It was requested that a summary sheet of changes in UNICOS 4.0 be made available to the user community. Depending on the impact of UNICOS 4.0, September or October 1988 is a possible time for bringing up UNICOS 4.0. Tape handling will not improve substantially before UNICOS 5.0.

Hydra Issues and Update. Tim Kuhfuss (Computing and Telecommunications) reported on the new Hydra performance and use. CTD anticipates that the new box will go into regular use on Monday, August 15, 1988. The old boxes need to be returned to the vendor. There was a discussion on the current settings on the new box regarding the Insert Mode feature. When the Hydra Protocol Converter is upgraded, two choices are available: (1) to allow the Insert Mode option to shift the line to the right, thereby losing those characters that go beyond the end of the line, or (2) to stop the Insert Mode option when the end of the line is reached. The difference between the two choices occurs because blanks are considered significant characters at the end of the line. If the user has chosen to fill the screen with blanks to aid in editing lines and adding characters without adding blanks, an Insert Mode operation immediately runs into the line end block. Some users like this feature, while others find it a nuisance. The opinions seem about evenly split. Currently, users can use the old Hydra to avoid this feature. To determine the user community feeling on whether this feature should remain or not, CTD will conduct a poll of users on the *Newsletter* distribution list. (See "Bulletin of August 15, 1988" in this *Newsletter.)* Ideally, blanks at the end of the line would not be treated as significant characters.

There is a new feature in the ALVT selection for VT100 mode on the new Hydra. A 25th line identifies whether the system is ready for input (RDY) or waiting for the system to respond (LCK) and whether the Insert Mode option is active (INS). Also, CTD has added five more lines to the temporary telephone number, 2-7707, for testing the upgraded Hydra.

CTD is still investigating a way to prevent users from accessing the session of someone who is disconnected from the Hydra without properly logging off.

The meeting adjourned at 4:18 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD AUGUST 11, 1988

The chairperson, Gail Pieper (Mathematics and Computer Science), opened the meeting at 12:15 p.m. by announcing that Rich Nixon has been appointed manager of Graphic Arts. He has been acting manager since September 1987.

Lee Wagar (Graphic Arts) reported on the current status of the Texet composition system. Because Texet went out of business suddenly on July 5, 1988, Graphic Arts will minimize the use of the system until the software's legal and technical status is known. Compugraphics has expressed an interest in taking over the Texet software, but the level of assistance that Compugraphics will give is unknown. The impact of this change on Graphic Arts's customers will be minimal, because it has backup systems to provide onsite typesetting. Concerned clients should contact Lee at extension 2-5603 for more details.

Rich Nixon reported on the current status of equipment acquisitions. A new collator is on order and should arrive during the first week of September 1988. Graphic Arts has accepted the bid for a new printing press and has returned it to Procurement for contracting; Rich expects the press to arrive at the end of September 1988. Graphic Arts has also received the bids for the Site-Wide Copier Management project. Rich referred to it as a "wave of the present," since many organizations (some much larger than Argonne) have contracted with one vendor to provide copiers on a cost-per-copy basis. The Support Services Division is sending out a memo and questionnaire about the project. The responses will help identify the number and types of copiers that are needed.

Graphic Arts is reevaluating its computer graphics system, which is costly and time-consuming to operate. Graphic Arts hopes to replace it with more cost-effective equipment. Although Graphic Arts can use the Ilford camera for making viewgraphs from camera-ready copies, the cost is high ($10 to $15 per viewgraph), and Rich would like to know if a less expensive method would be used by Graphic Arts customers. Rich would also like to know if there is a demand for same-day service for small copying jobs if Graphic Arts would pick up and deliver. Prospective customers can reach Rich at extension 2-5600.

Rich summarized the three major recommendations of the Seybold report and gave responses to them. First, Graphic Arts needs improvements in equipment. This need is being addressed by (1) the new collator and printing press, (2) substantial improvement in Graphic Arts photography lab equipment, and (3) a request by Graphic Arts to buy out most of its currently leased equipment, which would reduce product costs. Second, Graphic Arts needs better trained staff. This need is being addressed by (1) Rich's appointment as manager, (2) a search for a supervisor and representative for the customer service group, and (3) ongoing training of Graphic Arts staff. Third, Graphic Arts must replace its charging structure. This need is being addressed in the Graphic Arts budget request for FY1989.

During the open forum, Bill Jepsen (Graphic Arts) reminded users that printing is cheaper than copying for more than 100 to 125 copies. Also, Bill noted that the print shop has historically been very busy between August 15 and September 30 and that users should try to plan their work requests accordingly.

The next Graphic Arts Users Group meeting will be held on Friday, September 9, 1988, at noon in Building 221, Room C-201. Elections for next year's chairperson and secretary will be held at this meeting.

Bryan Schmidt, Graphic Arts Users Group Secretary

WORKLOAD STATISTICS (JUNE 30 THROUGH JULY 28, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,357	1,348	547
Wylbur	1,642	1,626	505
MVS TSO	54	54	12
CICS	1,642	1,626	64
MVS Batch	2,048	2,032	770
VAX/VMS	328	334	188
Cray	235	263	124
All Systems	2,048	2,032	1,024

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	11,470	2,026	1,562	15,058	30,834.3	95.07
Wylbur	10,829	561	666	12,056	9,850.2	11.20
MVS TSO	44	2	3	49	25.9	0.03
CICS	28	0	0	28	0.0	0.76
VAX/VMS	6,096	415	437	6,948	7,322.3	57.47
Cray	1,330	132	51	1,513	739.0	12.45
IBM BATCH						
Class U	11,162	2,017	1,404	14,583	n.a.	37.29
Class W	19,392	2,286	1,565	23,243	n.a.	178.16
Class X	5	1,274	80	1,359	n.a.	58.59
Class Y	0	2	272	274	n.a.	19.34
Class Z	0	0	195	195	n.a.	6.39
Nonmain	14,410	1,375	991	16,776	n.a.	0.00
Total	44,969	6,954	4,507	56,430	n.a.	299.77
CRAY BATCH						
Prime	4,913	778	789	6,480	n.a.	296.67
Night	1	379	40	420	n.a.	82.79
Weekend	126	42	158	326	n.a.	38.39
Standby	0	0	130	130	n.a.	28.42
Total	4,913	1,199	1,117	7,356	n.a.	446.27
VMS BATCH						
Prime	927	426	303	1,656	n.a.	120.43
Night	3	33	1	37	n.a.	2.85
Weekend	0	0	31	31	n.a.	3.36
Standby	0	0	0	0	n.a.	0.00
Total	930	459	335	1,724	n.a.	126.64

INPUT/OUTPUT

Lines Printed	
Local	66,483,802
Remote	48,520,530
Fiche	28,924,497
Cards Punched-Local Only	131,259
Tape Mounts	8,842
Microfiche Developed	3,671
Microfiche Frames Developed	648,679

GRAPHICS	*# OF JOBS*	*# OF FRAMES*
CalComp Jobs	0	0
Versatec Jobs	0	0
Matrix 35mm Color	130	613
Matrix-8 x 10	10	10
Matrix-Negative	2	5
FR80 Film Plots		
35mm Black/White/Unsprocketed	38	366
35mm Black/White/Sprocketed	0	0
35mm Color	1	7
16mm Black/White/Sprocketed	2	3,298
16mm Color	0	0
105mm Black/White/Unsprocketed	0	0

DATA MANAGEMENT

Tapes Stored	22,856
New Tapes Saved	1,068
Tapes Released	934
Datasets Exported to Tape	379
Datasets Imported from Tape	662

* n.a. = not applicable

MVS BATCH SCHEDULING PERFORMANCE FROM JUNE 30 AT 7:00 A.M. TO JULY 28, 1988, AT 7:00 A.M.

	STARTED IN PRIME SHIFT	*STARTED IN OVERNIGHT SHIFT*	*STARTED IN WEEKEND SHIFT*	*TOTAL OF ALL SHIFTS*
CLASS U EXPEDITED BATCH				
Number Started	11,162	2,017	1,404	14,583
Number Started in 12 Minutes	10,734	1,496	1,192	13,422
Percent Started in 12 Minutes	96.2	74.2	84.9	92.0
25th Percentile Start Delay (Minutes)	0.1	0.1	0.1	0.1
50th Percentile Start Delay (Minutes)	0.1	0.3	0.1	0.1
75th Percentile Start Delay (Minutes)	0.3	13.6	2.6	0.5
90th Percentile Start Delay (Minutes)	2.3	39.5	21.5	7.4
99th Percentile Start Delay (Minutes)	60.3	228.5	230.1	83.0
CLASS W REGULAR BATCH				
Number Started	19,392	2,286	1,565	23,243
Number Started in 2 Hours	19,254	2,029	1,546	22,829
Percent Started in 2 Hours	99.3	88.8	98.8	98.2
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	0.1	0.0	0.0
90th Percentile Start Delay (Hours)	0.2	3.4	0.0	0.2
99th Percentile Start Delay (Hours)	1.7	12.4	3.9	4.5
CLASS X DEFERRED OVERNIGHT BATCH				
Number Started	5	1,274	80	1,359
Number Started in 15 Hours	5	1,272	80	1,357
Percent Started in 15 Hours	100.0	99.8	100.0	99.9
25th Percentile Start Delay (Hours)	0.0	2.5	0.0	2.2
50th Percentile Start Delay (Hours)	8.4	4.1	0.0	3.9
75th Percentile Start Delay (Hours)	8.7	7.4	0.0	7.0
90th Percentile Start Delay (Hours)	9.0	9.0	0.1	9.0
99th Percentile Start Delay (Hours)	9.0	10.9	0.6	10.8
CLASS Y DEFERRED WEEKEND BATCH				
Number Started	0	2	272	274
25th Percentile Start Delay (Hours)	0.0	44.6	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	44.6	0.3	0.3
75th Percentile Start Delay (Hours)	0.0	44.6	18.6	18.6
90th Percentile Start Delay (Hours)	0.0	44.6	22.1	22.1
99th Percentile Start Delay (Hours)	0.0	44.6	75.2	74.2
CLASS Z LIMITED DEFERRED WEEKEND BATCH				
Number Started	0	0	195	195
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	0.0	14.8	14.8
90th Percentile Start Delay (Hours)	0.0	0.0	19.7	19.7
99th Percentile Start Delay (Hours)	0.0	0.0	65.2	65.2
TOTAL OF ALL CLASSES				
Number Started	30,559	5,579	3,516	39,654

AVAILABILITY STATISTICS, BY MACHINE (JUNE 30 THROUGH JULY 28, 1988)

	Monthly Totals	Scheduled			Unscheduled		
		Hdware	Sftware	Other	Hdware	Sftware	Other
			YELLOW IBM 3033				
All Shifts							
Interruptions	19	3	7	1	3	5	
Hrs Unavailable	17.90	3.56	5.98	4.55	2.00	1.80	
MTF/Unscheduled	84.76				226.03	135.62	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	18	3	7		3	5	
Hrs Unavailable	13.35	3.56	5.98		2.00	1.80	
MTF/Unscheduled	29.83				79.55	47.73	
			RED IBM 3033				
All Shifts							
Interruptions	8	3	3	1		1	
Hrs Unavailable	8.41	3.28	1.71	3.08		0.33	
MTF/Unscheduled	687.58					687.58	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7	3	3			1	
Hrs Unavailable	5.33	3.28	1.71			0.33	
MTF/Unscheduled	246.66					246.66	

AVAILABILITY STATISTICS, BY SERVICE (JUNE 30 THROUGH JULY 28, 1988)

	Monthly Totals	Scheduled			Unscheduled		
		Hdware	Sftware	Other	Hdware	Sftware	Other
			CMS				
All Shifts							
Interruptions	8	3	3	1		1	
Hrs Unavailable	8.41	3.28	1.71	3.08		0.33	
MTF/Unscheduled	687.58					687.58	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7	3	3			1	
Hrs Unavailable	5.33	3.28	1.71			0.33	
MTF/Unscheduled	246.66					246.66	
			WYLBUR				
All Shifts							
Interruptions	20	3	8	1	3	5	
Hrs Unavailable	20.01	3.96	6.75	4.71	2.21	2.36	
MTF/Unscheduled	84.49				225.32	135.19	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	19	3	8		3	5	
Hrs Unavailable	15.30	3.96	6.75		2.21	2.36	
MTF/Unscheduled	29.58				78.90	47.34	
			MVS TSO				
All Shifts							
Interruptions	19	3	7	1	3	5	
Hrs Unavailable	19.51	3.96	6.25	4.71	2.21	2.36	
MTF/Unscheduled	84.56				225.49	135.29	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	18	3	7		3	5	
Hrs Unavailable	14.80	3.96	6.25		2.21	2.36	
MTF/Unscheduled	29.65				79.06	47.44	
			JES3				
All Shifts							
Interruptions	22	3	9	1	3	6	
Hrs Unavailable	19.48	3.61	7.30	4.55	2.10	1.91	
MTF/Unscheduled	75.16				225.50	112.75	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	21	3	9		3	6	
Hrs Unavailable	14.93	3.61	7.30		2.10	1.91	
MTF/Unscheduled	26.34				79.02	39.51	
			CICS				
All Shifts							
Interruptions	4		1		1	2	
Hrs Unavailable	1.93		0.38		0.50	1.05	
MTF/Unscheduled	231.35				694.06	347.03	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4		1		1	2	
Hrs Unavailable	1.93		0.38		0.50	1.05	
MTF/Unscheduled	83.35				250.06	125.03	
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	7		5			2	
Hrs Unavailable	12.45		11.91			0.53	
MTF/Unscheduled	341.77					341.77	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7		5			2	
Hrs Unavailable	12.45		11.91			0.53	
MTF/Unscheduled	119.77					119.77	
			CRAY				
All Shifts							
Interruptions	21	9	7		4	1	
Hrs Unavailable	28.45	18.35	5.93		3.75	0.41	
MTF/Unscheduled	133.51				166.88	667.55	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	10		7		3		
Hrs Unavailable	8.10		5.93		2.16		
MTF/Unscheduled	81.30				81.30		

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JUNE 30 THROUGH JULY 28, 1988)

COST	CENTER	BATCH	WYLBUR	CMS	MVS TSO	VAX/VMS	CRAY	DISK	OTHER	TOTAL
102	EBR-AW	607	1,525	176			4,654	2,086	442	9,490
104	EBR-IL	2,554	767	995		255	17	2,777	1,639	9,004
105	MSD	772	471	484		1,786	49,489	3,267	2,347	58,616
107	CMT	2,352	289	1,092		1,597		1,570	14,173	21,073
109	PHY	442	693	1,873		274	9,288	2,811	2,114	17,495
110	BIM	1,078	162	1,364	10	189	93	4,398	2,091	9,386
112	RAS	7,061	4,134	1,044		440	3,743	7,025	4,939	28,385
113	REE-SRF	46	6					9	19	79
114	MCT	2,616	598	1,667		594	301	3,982	3,015	12,772
115	ENG-IL	1,729	278	522		13		919	654	4,115
116	AP-IL	17,114	5,713	4,176	4	1,946	7,414	15,776	-8,071	44,071
117	AP-AW	2,207	1,042	9			2,045	4,085	186	9,574
118	REE-AW	1,752	520	399		1		1,551	105	4,328
119	AL-AW								24	24
120	CHM	740	249	71		7,310	1,847	2,820	1,194	14,231
130	APS	2,203	13	463		936		1,559	-587	4,587
136	PNS	110	18	8		43		153	12,700	13,032
137	HEP	343	14	403	1	40	2,843	2,827	1,039	7,509
139	DEP	329	269	629		61		773	-441	1,621
143	SSO-EL	100	4	115		8		112	665	1,004
145	MCS	40	2	27		169	21,186	2,471	4,126	28,021
148	HO	341	11	129				842	146	1,469
149	ER	239	73	437		76	548	2,217	-8,174	-4,583
150	SPM	93		57				156	14	320
161	TIS	1,302	40	19		4		697	280	2,341
171	RPD	1	4					106	71	181
174	EEP	138	21	3				64	25	252
178	FP	109	10	8	0	0		352	255	734
190	EES	11,191	3,902	508		9,591	529	19,690	8,225	53,636
197	IEP	444	18	406				154	38	1,060
201	OTO	16	0	149				368	281	815
202	OPS	15	1	57				42	104	218
210	SSD-CS	71	6	103				55	50	284
211	ENG-DE					11		240	26	277
216	SSD	122	25	74				167	73	461
222	SSO-LF								24	24
232	SEC	12		7				508	45	571
234	SSO-HP	11	1	62				170	40	283
235	SSD-OHS	329	37	66				615	118	1,165
236	OHS-FO								24	24
245	CTD	4,969	286	1,200				6,523	2,603	15,581
246	TIS-NESC	47	7	12			10	58	620	754
247	SSD-COM	652	19	1,153				1,076	563	3,463
260	SSD-GA	127		82				177	963	1,349
269	CMT-AC	106	8	31		0		95	26	264
271	OTD-RPA	394	43	66				209	141	854
272	APS			1				18	0	18
273	OTD-PR	35	1	112				48	51	247
274	OTO-EET	59	1	52				125	54	290
275	OPA	78	1	194				260	35	567
276	OPA-MP	30	2	5				42	2	81
315	SSD-MS	62	6	2,346				1,447	484	4,345
316	PFS-VM	22						40	61	122
317	PFS-DR	69	2	13				18	24	125
319	SSD-TVL			153				12	24	189
322	SSO-PRO							59	34	93
333	QAD-PQ	32	1					247	67	347
336	QAO-IN	16								16
400	CR-CTR	9,020	865	883				8,230	1,742	20,741
401	CR-ACT	17,863	1,812	500				20,197	294	40,668
402	OCF-DE							9	100	109
403	CR-BUO								24	24
410	HR	2,343	239	7,565				4,608	1,441	16,196
412	AAP			42				94	119	255
501	PFS-BM	12						42	62	116
502	PFS-IN								24	24
503	PFS-GR								24	24
504	PFS-CU								24	24
505	PFS-WMO			36				59	49	144
506	PFS-PMO	321	3	83				200	50	658
510	PFS-US								24	24
512	PFS-FPE	378	85	723				669	154	2,008
530	AW-SMO	88	3	19				48	25	182
531	AW-HR	12	4	196				47	24	284
532	AW-SPM	877	16	613	86			515	281	2,388
533	AW-ACT								24	24
534	AW-PUR							18	24	42
535	AW-SEC							30	24	54
536	AW-SS		0	34				250	25	309
537	AW-IS								24	24
538	AW-MHO	0	71	27				83	24	205
550	AW-CAS	240	34	62				116	24	477
551	AW-RM							12	24	36
554	AW-MS			20				25	24	69
556	AW-SE	52	22	74				77	29	254
557	AW-PS	6	6	79				66	24	182
558	AW-PS							6		6
559	AW-FS								24	24
561	QAO-AW							12	25	36
563	AW-TRP								24	24
750	OUTSIDE	461	461			1	41	475	687	2,126
751	FNAL	5,998		10				1,313	392	7,713
752	NAVY	2,676	963	1,303				7,273	3,707	15,921
753	METC			7				35	600	642
754	OOE-CH		1					6	115	121
757	COLLABOR	23	19	311				405	614	1,371
TOTAL	CHARGE	$105,696	$25,895	$35,607	$101	$25,344	$104,049	$142,788	$60,706	$500,185
245	CTO	8,288	1,593	71,428	16	6,428	7,107	26,609	32,025	153,493
800	CTO-OPS	23,515	645	20,601	20	3,764	691	6,543	6,027	61,807
TOTAL	NO CHARGE	$31,803	$2,239	$92,029	$36	$10,192	$7,797	$33,152	$38,052	$215,300

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 312)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	6-7463	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	6-7005	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	6-7005	972-7612
300 Bits Per Second	2-7603	6-7005	972-7603
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	6-8700	972-8700
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
ARPAnet Data Communications Network			
1,200 to 2,400 Bits Per Second Full-Duplex	2-7490	n.a.	972-7490

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**	**ARPAnet**
Monday to Thursday	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

* Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

SUBJECT INDEX FOR CALENDAR YEAR 1988 (9/88)

These entries refer to *Newsletters* published in 1988. All previous *Newsletters* are indexed in the December 1987 issue of the *Newsletter* or use the LOOKUP command in CMS, Wylbur, and distributed VAX computers.

- Account aliases
  - VAX NJE users may specify for MVS batch jobs ... 2518
- Administrative Long-Range Plan ... 2559
- Advanced Computing Research Facility (ACRF) ... 2513
  - parallel computing class ... 2467, 2478, 2487, 2499, 2514, 2525
  - programming techniques seminar ... 2514, 2525
  - two-week Institute in parallel computing ... 2525
  - update ... 2478
- Advanced Computing Seminars ... 2489, 2500
- Answer/DB
  - computer-based training course available in CMS ... 2479
- ANSYS Structural Analysis Program
  - available on the VAX 8700 ... 2570
  - to move from MVS batch to VAX 8700 ... 2543
- Apple Computer
  - MacKermit Version 0.9(40) available for the Macintosh ... 2572
- Apple LaserWriter
  - upgrade kit available ... 2487
- Application System
  - Project Management Office evaluation ... 2497
- ARPAnet
  - ANL access changes ... 2568
  - BITnet gateway changes ... 2458
- Asynchronous Data Interface (ADI)
  - use MKO with ... 2531

- Biomedical Computer Programs (BMDP)
  - BMDP-87 ... 2480
- BITnet
  - discussion groups available ... 2532
  - network ... 2467, 2493, 2518, 2550
- BLOWUP
  - available on color plotter ... 2489

- CAI (Computer-aided instruction)
  - available for Datatrieve ... 2519, 2571
  - available for EVE ... 2519
- CalComp
  - last pen plotter decommissioned ... 2503
- CalComp 5835XP color plotter
  - BLOWUP feature available ... 2489
  - STACK3 feature available ... 2489
- CAL580
  - old CalComp plotter decommissioned ... 2503
- CAL780
  - old CalComp plotter decommissioned ... 2503
- CAL936
  - old CalComp plotter decommissioned ... 2503
- CBT ... (see Computer-based training)
- CICS
  - computer-based training courses available in CMS ... 2559
  - new application menu screen ... 2526
  - new screen planned ... 2487
- CMS
  - Computer Graphics Metafile (CGM) graphics capabilities available for testing ... 2547
  - computer-based training (CBT) courses available ... 2559
  - Disspla 10.5 available for testing ... 2502
  - Kermit upgrade ... 2545
  - PL/I Optimizing Compiler available for testing ... 2500
  - Speakeasy IV Version Epsilon available for testing ... 2526
  - Tellagraf Version 6.1 available for testing ... 2502
  - upgrade to Release 5 ... 2480
  - VM/SP Release 5 available for testing ... 2515
  - Waterloo C (Version 3.0) available for testing ... 2515
- CMS execs
  - TESTCMS ... 2480
- COBOL
  - computer-based training courses available in CMS ... 2559
- Compilers
  - Cray CFT77 Fortran compiler now available ... 2501
- Computer Graphics Metafile (CGM) graphics capabilities available for testing in CMS ... 2547
- Computer Graphics Metafile (CGM) graphics capabilities available for testing in MVS ... 2547
- Computer Graphics Metafile (CGM) graphics capabilities available in VMS ... 2566
- Computer Output and Document Distribution Area (Building 221)
  - renovation of ... 2482
- Computer Users Group
  - current officers and subcommittees ... 2506

Computer-based training (CBT)
  available in CMS ... 2559
  courses ... 2479
  Language Sensitive Editor computer-based training available ... 2491
Computing and Telecommunications Division
  established ... 2543
Computing Center
  1988 holiday schedule ... 2488
Computing Center service schedule
  Fourth of July 1988 holiday ... 2513
  Labor Day 1988 holiday ... 2544
  Memorial Day 1988 holiday ... 2499
Computing classes scheduled for September and October 1988 ... 2557
Connection Machine
  acquired by Mathematics and Computer Science Division ... 2513
Consulting
  assistance available through electronic mail ... 2543
Cray UNICOS
  managing program products ... 2545
  new CFT compiler available ... 2545
  standby batch service increased to weeknights ... 2501
Cray X-MP/14 high performance computer
  Disspla Version 10.0 installed in UNICOS ... 2501
  increased UNICOS disk space ... 2528
  operating schedules for UNICOS ... 2465
  rates approved ... 2466
  TCP/IP access for testing ... 2527
  TCP/IP access to ... 2568
  test of IBM disks attached to ... 2529
  testing IBM 3380 disks ... 2561
  UNICOS 3.0 available ... 2465
  update ... 2453, 2465
  VAX/VMS station available for general use ... 2528
  WAIT time charge suspended ... 2528
CRWTH ... 2479, 2559
Cuechart
  Version 2.1 ... 2502

Datatrieve
  computer-based training courses available in CMS ... 2571
Datatrieve computer-based instruction available ... 2519
DFSORT
  available for testing in MVS batch ... 2549
Disks
  attached to Cray X-MP/14 ... 2529
Disspla
  Version 10.0 installed in Cray UNICOS ... 2501
Disspla 10.5
  available for user testing in CMS ... 2502
  available for user testing in MVS ... 2529
Distributed Array Processor (DAP) ... 2478
Documentation
  recently updated and published ... 2458, 2480, 2492, 2505, 2537, 2551
  UNICOS document available ... 2518

Electronic mail
  consulting ... 2543
  discussion groups available on BITnet ... 2532
Electronic publishing
  Texet ... 2478
EVE computer-based instruction available ... 2519
Expert systems
  course in Prolog and basic tools ... 2453
Ezpert
  Version 5.5 installed ... 2497

FETCH command failures ... 2498
Film developing schedule 7/88 ... 2529
Financial Management System (FMS) ... 2559
Focus
  computer-based training courses available in CMS ... 2479

Graphics
  BLOWUP and STACK3 features available on color plotter ... 2489
  CalComp pen plotter (last one) decommissioned ... 2503
  Disspla 10.0 installed in Cray UNICOS ... 2501
  Disspla 10.5 available for testing ... 2502, 2529
  G1DATA conversion to CA/ISSCO metafiles available ... 2503
  metafile conversion to CA/ISSCO available ... 2503
  negatives available from Matrix camera ... 2489
  SuperImage software for personal computers ... 2456, 2546
  Tellagraf 6.1 available for testing ... 2502
  Versatec decommissioning planned ... 2503
  viewgraphs available from Matrix camera ... 2489
G1DATA
  metafile conversion to CA/ISSCO available ... 2503

Hydra Protocol Converter
  available as IBM full screen emulator ... 2570
  available for testing ... 2532
  available offsite at 2400 baud ... 2490
  Insert options poll ... 2572
  new terminal selection menu ... 2532

IBM Personal Computer
    recommended Ethernet boards for ... 2537
    SuperImage graphics software ... 2456
IBM 3033
    replacement planning initiated ... 2453
    task force membership ... 2453
IBM 3380 disks
    testing on Cray X-MP/14 ... 2561
ICUSER
    computer-based training course available in CMS ... 2479
IMSL library
    Converting to Edition 10.0 ... 2565
    Edition 10.0 available in UNICOS ... 2563
    IMSL Edition 10.0 compatibility with IMSL on other ANL systems ... 2564
Integrated Financial System (IFS) ... 2559
    FY1989 implementation milestones ... 2558
International Atomic Energy Agency (IAEA)
    network ... 2572
Internet
    conversion to domain names ... 2568
ISPF
    computer-based training courses available in CMS ... 2479
Itel disk equipment
    removal of ... 2456

Language Sensitive Editor
    available on the VAX 8700 computer ... 2491
    computer-based training available ... 2491
LaTeX now available on VAX 8700 computer ... 2535
Librarian
    Version 3.7 with LIBAUDIT ... 2548
Local area network (LAN) Ethernet
    reliability improved ... 2490

Machine Keyboard Origination (MKO)
    use with ADIs ... 2531
MacKermit Version 0.9(40) available for Apple Macintosh ... 2572
MACSYMA available on the VAX 8700 ... 2534
Management Information Systems Section, new ... 2558
Mass-11 word processor available on VAX 8700 ... 2571
Materials Catalog (MCAT) ... 2500
Mathematics and Computer Science Division
    VAX to be decommissioned 9/30/88 ... 2557
Matrix camera
    viewgraph development schedule ... 2529
    viewgraphs and negatives available ... 2489
MFEnet
    upgraded to MFEnet II ... 2570
MFEnet II ... 2570
Multiprocessing ... 2478, 2513
MVS
    Computer Graphics Metafile (CGM) graphics capabilities available for testing ... 2547
    DFSORT available for testing ... 2549
    maximum region size reduced ... 2531
    PL/I Optimizing Compiler 5.1 available for testing ... 2549
    VAX NJE users may specify account alias for batch jobs ... 2518
    VS Fortran Version 2.3.0 available for testing ... 2567

NAG library
    G floating-point NAG library available on VAX 8700 ... 2504
    Mark 11 Version to be removed from VAX 8700 ... 2551
    Mark 12 Version available in UNICOS ... 2562
Negative film
    available from Matrix camera ... 2489

Office Systems
    computer-based training courses available in CMS ... 2559

PBX
    acceptance ... 2531
Personal computers
    OS/2 considerations ... 2457
    SuperImage graphics software ... 2456
Phased disk replacement
    elimination of TSPERM ... 2456
    elimination of TSP60n disks ... 2456
PL/I
    Optimizing Compiler available for testing in CMS ... 2500
    Optimizing Compiler 5.1 available for testing in MVS batch ... 2549
PROFS
    Version 2 Release 2 installation plans ... 2544
Project Management System (PMS IV) ... 2497
Protection
    computer protection ... 2454

RACF
    installation procedure ... 2454
    passwords stored in encoded format ... 2519

Service rates
    Cray X-MP/14 rates approved ... 2466
    surcharge to non-ANL users increased ... 2487, 2499, 2557
Service Schedule
    Computing Center ... 2465

Services (computer maintenance)
  available from Electronics ... 2498
SPCAL580
  old CalComp plotter decommissioned ... 2503
SPCAL780
  old CalComp plotter decommissioned ... 2503
SPCAL936
  old CalComp plotter decommissioned ... 2503
Speakeasy
  IV Version Epsilon available for testing in CMS ... 2526
SPFVERS11
  Versatec decommissioning planned ... 2503
SQL
  computer-based training courses available in CMS ... 2479
Statistical Analysis System
  videotapes available ... 2566
STORECAT ... 2500
Stores Catalog ... 2500
SuperImage graphics software ... 2456, 2490
  hardcopy output ... 2546

Tape
  available in UNICOS ... 2517
  releasing unneeded ... 2513
TCP/IP
  access to Cray X-MP/14 available ... 2568
  conversion to domain names on the Internet ... 2568
  Cray UNICOS testing ... 2527
Tellagraf
  Version 6.1 available for testing in CMS ... 2502
Terminals
  Hydra Protocol Converter available for testing ... 2532
TESTCMS execs ... 2480
TeX now available on VAX 8700 computer ... 2535
Texet electronic publishing system ... 2478
TSO
  computer-based training course available in CMS ... 2479
TSPERM
  datasets moved to PERM ... 2456
  no longer defined ... 2456
  removed through phased disk replacement ... 2456

UNICOS
  classes ... 2465
  Cray CFT77 Fortran compiler now available ... 2501
  documentation available ... 2518
  IMSL Edition 10.0
    MATH/LIBRARY ... 2563
    SFUN/LIBRARY ... 2563
    STAT/LIBRARY ... 2563
  IMSL Edition 10.0 Library available ... 2563
  libraries
    renamed for UNICOS 4.0 ... 2561
    shell variables changed ... 2561
  NAG Mark 12 Library available ... 2562
  operating schedules on Cray ... 2465
  segldr
    directives, DUPENTRY ... 2561, 2562, 2563
    directives, LIB ... 2562, 2563
    libraries, ANLUTIL ... 2561
    libraries, Disspla ... 2561
    libraries, IMSL ... 2561, 2563
    libraries, NAG ... 2561, 2562
    libraries, pathnames ... 2561, 2562, 2563
    libraries, shell variables ... 2561, 2562, 2563
    libraries, SLATEC ... 2561
    libraries, specifying ... 2561
    options ... 2562, 2563
  tapes available ... 2517
  update ... 2477
UNICOS 3.0
  available on Cray X-MP/14 ... 2465
UNICOS 3.0.11
  in production ... 2500
UNICOS 4.0
  conversion schedule for ... 2560
Unix
  available on VAX 8700 ... 2470
User assistance
  consulting available through electronic mail ... 2543
USERDETAIL command
  available on VAX 8700 ... 2473

VAX Supercomputer Gateway
  available for general use ... 2528
VAX Supercomputer Gateway testing ... 2516
VAX 8700 computer
  G Floating-point NAG library available ... 2504
  Language Sensitive Editor available ... 2491

VAX 8700 computer system
  ANSYS available on ... 2570
  cluster upgraded to Version 4.7 ... 2550
  computer-based instruction
    available for Datatrieve ... 2571
    available for EVE and Datatrieve ... 2519
  group manager role created ... 2505
  LaTeX now available ... 2535
  MACSYMA available on ... 2534
  Mass-11 word processor available ... 2571
  NAG Mark 11 Library to be removed ... 2551
  online Desk Calculator ... 2535
  remote printer service available ... 2534
  software upgrades ... 2473
  TeX now available ... 2535
  Unix available on ... 2470
  USERDETAIL command available on ... 2473
VAX/VMS
  command line editing ... 2468, 2469
  command line recall ... 2469
  Computer Graphics Metafile (CGM) graphics capabilities available ... 2566
  print capability extended ... 2491
  software distribution kit sharing procedure extended ... 2490
  users may submit account alias for MVS batch jobs ... 2518
Versatec
  planned decommissioning ... 2503
VERS11
  Versatec decommissioning planned ... 2503
Viewgraphs
  available from Matrix camera ... 2489
  schedule ... 2529
Virtual Machine System Product Release 5 (VM/SP5)
  available for testing ... 2515
VM/SP5 ... (see Virtual Machine System Product Release 5)
VS COBOL II
  computer-based training courses available in CMS ... 2559
VS Fortran
  Version 2.3.0 available for testing in MVS batch ... 2567

WAIT time
  on Cray, charge for suspended ... 2528
Waterloo C
  version 3.0 available for testing in CMS ... 2515
Wylbur
  fetch failures ... 2498

X.25
  expanded access ... 2490

Argonne National Laboratory
Computing and Telecommunications Division
September and October 1988

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering one demonstration, one seminar, and seven computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the Computing and Telecommunications Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	September 7, 1988 (Wednesday), 9:00 a.m. to noon
Location:	Building 221, Room A-261
Suggested Reading:	*Guide to Computing at ANL* (ANL/TM 336) *Recommended Documentation for Computer Users at ANL* (ANL/TM 379) *Guide to Telecommunications at ANL* (ANL/TM 422)
Instructor:	Rich Slade

USING COMPUTER-BASED TRAINING

Goals:	To provide a demonstration of how to use computer-based training (CBT) courses in CMS to allow prospective students to learn more about available CBT courses.
Length of Demonstration:	One hour
Date and Time:	September 8, 1988 (Thursday), 9:30 a.m. to 10:30 a.m.
Location:	Building 221, Room A-261
Instructor:	Dave Leibfritz

☆ U.S. GOVERNMENT PRINTING OFFICE 1988—542-143/80003

DOC.
E1.86/5:
19/10

ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 19 **NUMBER 10** **OCTOBER 1988**

COMPUTING COMMENTS

Requirements of Computer Security and Privacy Act of 1987 2577
Mathematics and Computer Science Parallel Computing Class 2577
Computing Seminar Scheduled for October 1988 2577
High Performance Computing Seminars 2577

MANAGEMENT INFORMATION SYSTEMS

Fiscal Year Closing 2578
Integrated Financial System Update 2578
Contingency Plan Tested 2578
Improved Report Delivery for Administrative Offices in Building 201 2579

CRAY NEWS

Changes Required by UNICOS 4.0 2579
NQS Batch Job Scheduling Changes in UNICOS 2580
ACQUIRE/FETCH/DISPOSE Default File Format To Change on UNICOS 4.0 2581

MVS NEWS

Secondary MVS/JES3 Processor S33B Being Removed 2582
Some MVS FORMS Names Are Changing 2583
PMS IV To Be Removed from MVS 2583

TELECOMMUNICATIONS NEWS

NJE Client Services Now Available to VAX DECnet Nodes 2584
NJE Service Rates Revised 2584
New Additions to BITnet University Network 2584
DOE Germantown NJE Nodenames Have Changed 2585

VAX/VMS NEWS

Revised VAX 8700 Batch Queue Names 2586
Text Editors on the VAX Cluster 2586
GNU-EMACS Text Editor Available on the VAX Cluster 2587

BITS & BYTES

PL/I Checkout Compiler To Be Removed from CMS and MVS 2588
Recently Updated and Published Documents 2588

USERS GROUP HIGHLIGHTS

Minutes of Computer Users Group Meeting Held September 6, 1988 2589
Minutes of Graphic Arts Users Group Meeting Held September 9, 1988 2591
Minutes of Macintosh Users Group Meeting Held September 14, 1988 2592

COMPUTING CENTER STATISTICS

COMPUTING CENTER TELEPHONE NUMBERS AND SERVICE SCHEDULE

SUBJECT INDEX

APPENDIX
Computing Center Seminar
Computing and Telecommunications Division Rates Effective October 1, 1988

OSITORY
DEC 23 1988
UNIVERSI ILLINOIS
AT U MPAIGN

COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
Building 221
Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Director, Computing and Telecommunications	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Networks	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Telecommunications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Information Systems	Diane Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource and Plant Services Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Material Systems	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Information Technology Resources Planning	Mike Boxberger	A245	2-5639	B34540 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Rich Slade	B139	2-7674	B32848 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 3.0, a Sun 3/280, a DEC VAX-11/750, a DEC VAX 8700, a DEC VAX 8250, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger and Debbie Walsh with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

REQUIREMENTS OF COMPUTER SECURITY AND PRIVACY ACT OF 1987

In January 1988, the Computer Security and Privacy Act of 1987 became law. The Act requires all federal agencies and their contractors (including Argonne):

1. To establish a list of all sensitive computer systems by July 8, 1988.
2. To establish a Computer Security Education and Awareness Program by September 8, 1988.
3. To submit a protection plan for each sensitive computer system to the National Institute of Standards and Technology (formerly the National Bureau of Standards) by January 8, 1989.

Argonne has complied with items 1 and 2. However, we still need to formalize and to expand the program in item 2.

DOE has provided its contractors with a set of instructions for submitting the protection plans required under item 3. *All* federal contractors and agencies must use the same format. The owners of sensitive systems, the Computer Protection Program Representatives, the Assistant Computer Protection Program Managers, and the Laboratory Computer Protection Program Manager are putting together the required protection plans. Where possible, we are documenting systems with similar properties under one protection plan.

We believe DOE will ask us to submit these plans to them in late November 1988 or early December 1988, so that DOE will have time to review them before submitting them to the National Institute of Standards and Technology by January 8, 1989.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASS

The Mathematics and Computer Science Division is offering a three-day class (9:00 a.m. to 4:30 p.m. on Wednesday, Thursday, and Friday, November 2-4, 1988) on how to use the Argonne Advanced Computing Research Facility (ACRF). The class will instruct users on how to write programs for the parallel computer systems in the ACRF.

The class will cover the following topics: (1) automatic parallelizing compilers, (2) packages for portable parallel programming (including the Monitor package and the Schedule package), (3) hypercube programming, (4) programming the Distributed Array Processor (DAP), and (5) programming the Connection Machine-2. On the third day, a portion of class time will be spent on each attendee's project. The class will include hands-on experience in writing and running programs on each machine. Participants will become familiar with the ACRF environment. Some knowledge of the Unix file system, an editor, and Fortran is necessary. To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To register for the class, contact Teri Huml at (312) 972-7163 or at electronic mail address huml@anl-mcs.arpa. There is a $25.00 charge for this class.

COMPUTING SEMINAR SCHEDULED FOR OCTOBER 1988

During October 1988, the Computing and Telecommunications Division (CTD) will offer one seminar. The schedule is appended to this *Newsletter*. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the seminar and notify attendees of any schedule changes.

UNICOS 4.0--What's Different (a one-hour seminar) is for current Cray UNICOS 3.0 users who want to learn about the new features and changes in UNICOS 4.0.

HIGH PERFORMANCE COMPUTING SEMINARS

The series of seminars is continuing. Upcoming talks for the month of October are:

Alan Huang, AT&T Bell Laboratories
Optical Digital Computers
Thursday, October 6, 1988

Jon Solworth, University of Illinois at Chicago
To Be Announced
Thursday, October 20, 1988

Craig Upson, Stellar Computers
Coprocessing Environments for Interactive Visualization
Thursday, October 27, 1988

Henk van der Vorst, Delft University of Technology
High Performance Preconditioning
and
Numerical Aspects of Parallel Computing
Friday, October 28, 1988

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415. The seminar chairman is Jack Dongarra.

MANAGEMENT INFORMATION SYSTEMS

FISCAL YEAR CLOSING

Users of the Financial Management System (FMS) should be aware of the schedule for closing the Laboratory's financial books for FY1988. Specifically, the FMS databases will be unavailable from Wednesday, October 5, 1988 (while the Office of Chief Financial Officer closes the books and reports the Laboratory's financial position to the Department of Energy) until sometime on Tuesday, October 11, 1988. To determine the exact time when you can run your final reports, listen to the recorded message on extension 2-5466.

INTEGRATED FINANCIAL SYSTEM UPDATE

The General Ledger (GL) software of the Integrated Financial System (IFS) will be used at the start of FY1989 to process transactions that are entered into or generated by the Financial Information System (FIS). The Office of the Chief Financial Officer (OCF) will schedule Information Expert (IE) training in the first quarter so that users can begin to extract IE reports; meanwhile, the Financial Management System (FMS) will continue to be the official reporting vehicle to the Laboratory. Users will have until early March 1989 to become familiar with the new reporting mechanism before the pertinent FMS reports are decommissioned along with the FIS portion of the system.

The Project Team has been testing the new system using July data. Results of parallel testing have been successful and within cost predictions. However, verification of results is time consuming and hampered by the need to devote effort to the fiscal year close and new year file initialization. Having carefully weighed all the options, OCF and CTD have decided that it is imperative to continue to parallel three months of data. OCF will report the Laboratory's financial position to DOE from FIS until March 1989. The approach of retaining FIS while continuing to process the same data through the new software provides a safe transition to full production, while giving all users earlier access to parallel reporting from the new system.

Users can obtain further information about the IFS project from subsequent issues of the *Newsletter* and at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169 from 1:30 p.m. to 3:00 p.m.

CONTINGENCY PLAN TESTED

The Information Systems Section of the Computing and Telecommunications Division (CTD) completed the annual test of the Laboratory's critical administrative computer systems during August 1988. This test is part of the disaster recovery procedures required by DOE Order 1360.2A and contained in *Disaster Recovery Plan for Administrative Systems* (ANL/TM 456), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

The Information Systems Section maintains 43 administrative applications, 11 of which are critical to the continued operation of the Laboratory. The critical applications are the Budget System, Check Reconciliation (AP and PAY), Check Writing--Accounts Payable, the Financial Information System, the Financial Management System, the Integrated Payroll System, the Integrated Personnel Management System, the Special Materials Information System, the Automated Materials and Payables System, the Maintenance Control and Reporting System, and the Stock Tracker System.

The Financial Information System, the Integrated Payroll System, and the Integrated Personnel Management System must be operational at the Laboratory's interim back-up site (the University of Chicago) within three days of a disaster. The Information Systems Section did not test the Financial Information System, because the Integrated Financial System will replace it in October 1988. The Information Systems Section successfully tested the Integrated Payroll System and the Integrated Personnel Management System by using back-up tapes and documentation from the disaster back-up vault. The testing at the University of Chicago ensured that our procedures for modifying ANL job streams to operate at the University are consistent with the University's computing environment.

IMPROVED REPORT DELIVERY FOR ADMINISTRATIVE OFFICES IN BUILDING 201

The Computing and Telecommunications Division (CTD) has installed a Hewlett-Packard 2680 laser printer (Building 201, Room C-167) that was purchased by the Office of the Chief Financial Officer (OCF) to make reports available to Building 201 personnel within minutes throughout the day. Previously, these reports were available by courier service only twice a day from Building 221, unless someone made a special trip to pick them up. The Hewlett-Packard 2680 laser printer will print administrative reports that are currently printed on the IBM 3800 laser printer (Building 221, Room A-134) with the same format and quality. Although initially limited by communications line speed to only twenty pages per minute, the new printer is capable of printing forty pages per minute. The installation of new high-speed communications control hardware in Building 221 (possibly in 1989) will allow printing at the higher rate.

Personnel in Building 201 who currently print reports on the IBM 3800 or IBM 1403 printers in Building 221 can print these reports in Building 201 by routing them to RM002. FMS users can print standard FMS reports by choosing selection code **SETS** to change the printer destination to **RM002** either permanently or for that session only. To print special FMS reports, contact CTD User Services (extension 2-5405) to alter the destination embedded in the code. In MVS, to print all output from a job in Building 201, enter:

```
//*FORMAT PR,DDNAME=,DEST=RM002
```

In MVS, for each specific "ddname" report to be printed in Building 201, enter:

```
//*FORMAT PR, DDNAME=ddname,DEST=RM002
```

In CMS, to print a report in Building 201, enter:

```
CP SPOOL PRINTER TO VNET
CP TAG DEV PRINTER ANLOS RM002
```

In Wylbur, to print a report in Building 201, enter the **DEST=RM002** parameter with the **RUN** or **LIST** command.

We recommend that you still print large reports (greater than 500 pages) on the IBM 3800 laser printer in Building 221, unless prior arrangements are made with the Computer Operations manager (extension 2-5437). Large reports should not be printed at the beginning or the end of the month until FMS has been released (as these reports could delay the monthly financial close process).

CRAY NEWS

CHANGES REQUIRED BY UNICOS 4.0

As announced in the September, 1988 *Newsletter*, the Computing and Telecommunications Division (CTD) plans to install UNICOS 4.0 on Monday, October 17, 1988, for a 24-hour user test. If all goes well during the test, UNICOS 4.0 will become the production system on the Cray X-MP on the following Monday, October 24, 1988. Most users will need to make minor changes to their Network Queuing System (NQS) batch jobs and UNICOS Shell scripts to convert to UNICOS 4.0. Computing and Telecommunications will hold a brief UNICOS 4.0 "What's Different?" seminar prior to the one-day test. See the schedule at the back of this *Newsletter*. The following areas have the greatest impact:

- UNICOS 4.0 replaces the UNICOS 3.0 session and job accounting commands, **jad** and **jar**, with the single new accounting command, **ja**. The UNICOS 3.0 **jad** and **jar** commands will continue to work until we install UNICOS 5.0, so there is no immediate need to replace them. However, the new **ja** command is more efficient, provides more control over the accounting statistics gathered, and provides more information in the accounting reports, than the two commands it replaces. More importantly, unlike **jad** and **jar**, **ja** does not impair the recovery of NQS jobs following an NQS system shutdown. Note that the **ja** and **jar** command options differ somewhat. To convert your NQS jobs to the new commands, replace **jad** with **ja** (no options) and replace **jar -cfsh** with **ja -cfst**. (You must specify the **-t** option; only specify the **-c** (command statistics report), **-f** (command flow report), and **-s** (summary report) options for the reports you desire. See *UNICOS User Commands Reference Manual* (SR-2011 4.0) for additional options of the **ja** command.

- In UNICOS 4.0, the UNICOS 3.0 **scpqsub** and **scpreroute** commands are renamed **uscpqsub** and **uscproute**, respectively. Only the names of these commands have changed; their options and parameters remain the same. We will provide **scpqsub** and **scpreroute** Shell scripts in UNICOS 4.0 to permit these command names to continue to work up until we install UNICOS 5.0. However, we urge you not to wait that long to convert to the new command names.

- Several commands used to process tapes are named differently in UNICOS 4.0:

UNICOS 3.0	UNICOS 4.0
mntp	tpmnt
rst	tprst
tps	tpstat
sendi	msgi
sendm	msgr

Also, the UNICOS 4.0 **rls** command has a new option; you must specify the **-k** (keep) option when you release a tape drive if your job will later mount the same tape or another tape on the drive.

We have had to modify the local tape-handling Shell scripts to accommodate the changes in UNICOS 4.0. When you use **anlrls** to release a tape drive, use the **keep** parameter if your job will later mount the same tape or another tape on the drive. To obtain the volume serial number of a new library tape in the same NQS job that assigned that tape (so that, for example, you can mount the same tape again in that job), use

```
VOL=`anlvolser pathname`
```

where "pathname" is the UNICOS path name you used when you mounted the tape, and "VOL" is a shell variable to receive the tape volume serial number.

- In UNICOS 3.0, the default format for file transfer (**acquire**, **fetch**, **dispose**, and **uscproute**) between UNICOS and the MVS and VAX/VMS front-end Stations is *character blocked* (**-fCB**), while in UNICOS 4.0, the file transfer default will be *UNICOS data* (**-fUD**). This has little impact on MVS Station users. But, VAX/VMS Station users who have **dispose**'d files from UNICOS to the VAX cluster in the default character blocked format, must specify that format explicitly (**-fCB**) to **acquire** or **fetch** that file back to UNICOS. See "Fetch/dispose Default File Format to Change in UNICOS 4.0" in this *Newsletter* for further information on this topic.

There are other changes and new features in UNICOS 4.0, but these changes will not require you to convert any existing jobs. We will discuss these other changes after we have installed UNICOS and have developed more experience.

NQS BATCH JOB SCHEDULING CHANGES IN UNICOS

In response to user feedback and in preparation for new FY1989 rates, the Computing and Telecommunications Division (CTD) has implemented a new job scheduling and charging strategy for the Network Queuing System (NQS) batch jobs in UNICOS. CTD has replaced the previous shift-based NQS batch queues in UNICOS (**day**, **night**, **weekend**, and **standby**) with new priority-based NQS batch queues (**u**, **w**, **x**, and **y**, in decreasing order of priority). Specify the UNICOS **qsub** command **-q** option or the equivalent NQS **#QSUB-q** batch directive to request service in one of these NQS batch queues. NQS will place jobs that do not specify any NQS batch queue into the **w** batch queue.

To assist in your transition to the new queues, we will place NQS jobs that specify an old batch queue into the nearest equivalent new batch queue (**day** into **w**, **night** into **x**, **weekend** into **y**) to allow them to continue to run. There is no planned equivalent for the **standby** queue; NQS will reject all jobs that specify the **standby** queue after October 1, 1988. Please convert your NQS jobs to the new queues as soon as practical.

Priority Based Scheduling and Charging

You control the scheduling and charging of an NQS batch job by placing it into one of the four priority-based batch queues. In decreasing order of NQS job selection priority, UNICOS job dispatching priority, and resource charging rate, these queues are designated by the single lowercase characters: **u**, **w**, **x**, and **y**.

Regardless of queue, jobs requesting more than one hour of CPU time will not run during the prime shift, unless the UNICOS system is unusually lightly loaded; jobs in all queues that require no more than one hour of CPU time will be eligible to run anytime. However, during the prime shift when a backlog of higher priority (**u** and **w**) jobs develops, the UNICOS operators may stop scheduling **x** and **y** jobs and may suspend **x** and **y** jobs that have already started but not completed. The operators will restart suspended jobs and resume scheduling **x** and **y** jobs when the backlog diminishes or prime shift ends.

Within the above constraints, the NQS scheduling system will select jobs from a higher priority queue for execution before jobs in a lower priority queue, regardless of how long the lower priority jobs have been waiting in the queues. When a mix of jobs from different queues is running, UNICOS will devote a larger share of the CPU time to the jobs from the higher priority queues than to the jobs from the lower priority queues. NQS will give jobs in the **u** and **w** queues that request thirty seconds of CPU time or less additional preferential treatment to expedite batch debugging. There is no way to move a job from one queue to another. When a backlog of jobs delays the service you need for your job, you can cancel the job and resubmit it in a higher priority queue.

The rates charged for jobs in the **x** and **y** batch queues are independent of the shift in which the jobs execute. Jobs in the **u** and **w** batch queues are charged less when they execute outside of the prime shift than when they execute during the prime shift. Despite these discounts, jobs in a higher priority queue are always charged higher rates than jobs in a lower priority queue, regardless of the computing shift in which the jobs run. For the charges in the different queues and computing shifts, see the current "Computing and Telecommunications Division Rates" at the back of this *Newsletter*.

NQS Job Defaults and Limits Revised

NQS job resource limits are the same for all four batch queues. NQS will not accept a job that requests more than three million words of memory, more than three hours of CPU time, more than four tape drives, or more than one gigabyte of disk space for a single UNICOS file. (Contact the User Services consultants at extension 2-5405 to make special arrangements, if you have a job that cannot fit within these limits.)

NQS does not assign job resource defaults in the usual sense. Runaway jobs that lack resource limits could be very expensive. Users should always explicitly specify the limits required by their NQS jobs. Specify the UNICOS **qsub** command **-lM**, **-lT**, **-lU**, and **-lf** options or the equivalent **#QSUB-lM**, **#QSUB-lT**, **#QSUB-lU**, and **#QSUB-lf** batch directives to specify your NQS batch job's memory, CPU time, tape unit (in UNICOS 4.0 only), and file size requirements, respectively.

ACQUIRE/FETCH/DISPOSE DEFAULT FILE FORMAT TO CHANGE ON UNICOS 4.0

As announced in the September 1988 *Newsletter*, the Computing and Telecommunications Division (CTD) plans to install UNICOS 4.0 on Monday, October 17, 1988, for a 24-hour user test. If all goes well during the test, UNICOS 4.0 will become the production system on the Cray X-MP on the following Monday, October 24, 1988. Many users will need to make minor changes to the **acquire**, **fetch** and **dispose** commands in their Network Queuing System (NQS) batch jobs and UNICOS Shell scripts to convert to UNICOS 4.0.

Beginning in UNICOS 4.0, the default file format (**-f** option) used by the **acquire, fetch**, and **dispose** commands will change from character blocked (**-fCB**) to UNICOS data (**-fUD**). These file transfer formats affect the way that the **dispose** command stores ASCII formatted Cray files on the front-end station systems, and the way that the **acquire** and **fetch** commands convert formatted front-end station files (ASCII in VAX/VMS, EBCDIC in MVS) for storage on the Cray. The impact of the change is different for the MVS and VAX/VMS stations.

File Transfer Changes for MVS Station Users

MVS station users do not have to change the way they use **acquire**, **fetch**, and **dispose** in UNICOS 4.0, but most users will benefit by converting to the new **UD** format. The files you **dispose** from UNICOS to MVS are stored identically, regardless of whether you specify **CB** or **UD**, on the front-end system; the MVS file format is fully determined by the DCB parameters you specify in the **dispose** command's text field, not the **CB** or **UD** specification. The format of files you **acquire** or **fetch** from MVS to UNICOS does depend on whether you use the **CB** or **UD** format; when you use **UD** format, the MVS station will remove all trailing blanks from the records of fixed length files. Generally, this removal of trailing blanks is desirable. Therefore, we recommend that you remove all explicit specifications of character blocked (**CB**) format from your UNICOS **acquire**, **fetch**, and **dispose** commands for the MVS station, and accept the new UNICOS data (**UD**) default.

File Transfer Changes for VAX/VMS Station Users

VAX/VMS station users must change the way they use the **acquire**, **fetch**, and **dispose** commands for ASCII files in UNICOS 4.0. The VAX/VMS station uses different VMS file formats to store the files you **dispose** from UNICOS to VMS, depending on the **dispose** format you specify. The VAX/VMS station stores the files you **dispose** in character blocked (**CB**) format as variable length VMS files, and the files you **dispose** in UNICOS data (**UD**) format as Stream_LF VMS files.

When you **acquire** or **fetch** a VMS ASCII file to UNICOS, you can use **CB** format for any VMS format file, but you can use **UD** format only for Stream_LF VMS files. Thus, if you have **dispose**'d an ASCII file under UNICOS 3.0 with the then default **CB** file format, and you attempt to **acquire** or **fetch** that file back to the Cray under UNICOS 4.0 with the new default **UD** format, your file transfer will fail. In UNICOS 4.0, you must specify **-fCB** explicitly to **acquire** or **fetch** any VMS ASCII file that is not in Stream_LF format.

Why is a UNICOS 3.0 default that works for any VMS ASCII file bein g replaced by a UNICOS 4.0 default that works for only one particular (and uncommon) VMS file format? The answer is performance. The VMS Stream_LF format is identical to the format UNICOS uses for ASCII files. Therefore, the VAX/VMS station does not have to perform any format conversion when it transfers files between UNICOS and VMS in the UNICOS data format. Measurements by Cray and DEC show that VAX/VMS station file transfers in **UD** format are six to eight times faster than in **CB** format, and require less CPU time on both the Cray and the VAX.

To minimize the impact of the new UNICOS 4.0 default, you should begin now to code explicitly your desired file transfer format (**-fCB** or **-fUD**) on your file staging commands. For example, you may **dispose** a file to the VAX with the following command:

```
dispose crayfile -fUD -t'vax.file'
```

To **fetch** this file back to the Cray, code the command:

```
fetch crayfile -fUD -t'vax.file'
```

(Following conversion to UNICOS 4.0, you can omit the **-fUD** specification.)

We recommend you use UNICOS data format whenever practical for its performance advantages. But, the UNICOS data format is not always appropriate. The VMS Stream_LF format may not be acceptable for processing you must perform on the VAX. And, few VAX editors or other VAX programs create files in Stream_LF format. For these situations, specify the **CB** format explicitly on your VAX/VMS station file transfer commands.

MVS NEWS

SECONDARY MVS/JES3 PROCESSOR S33B BEING REMOVED

The Computing and Telecommunications Division (CTD) has shut down the secondary MVS/JES3 S33B batch processor. The S33B batch system ran under the VM operating system and assisted the primary batch system S33A in processing Argonne's MVS/JES3 batch workload. CTD removed the S33B to reduce the monthly software charges that CTD incurs by running a second copy of the MVS/JES3 operating system. A recent analysis of the Argonne MVS/JES3 batch workload showed that sufficient batch workload had migrated to the Cray X-MP to permit consolidating all of the remaining MVS/JES3 batch workload on the S33A processor (See Figure 1).

The following graph compares the prime shift batch CPU hours sold on the S33A and S33B systems during August 1987 and August 1988. This graph shows the relative amount of work performed by the two batch systems and how the introduction of the Cray has sufficiently reduced the MVS/JES3 batch workload to permit combining the two systems.

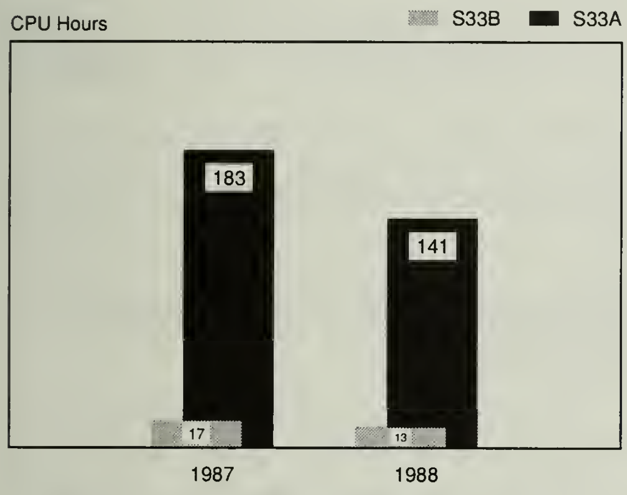


Figure 1: Prime Shift Batch CPU Usage S33A and S33B, (August 1987 versus August 1988)

Many users may be unaware that two MVS/JES3 batch systems have been available, because of CTD efforts to make the two processors look identical. Users should review their MVS/JES3 job control language to determine if they use the following //*MAIN statement:

```
//*MAIN SYSTEM=S33B
```

Users who use the SYSTEM=S33B parameter in their JCL should contact the User Services consultants at extension 2-5405 to determine what action should be taken.

SOME MVS FORMS NAMES ARE CHANGING

The Computing and Telecommunications Division (CTD) is planning to install maintenance to the MVS JES3 system that will begin to enforce a previously unenforced restriction. MVS JCL restricts the FORMS names that you specify on a JES3 //*FORMAT statement or on an MVS //OUTPUT statement to alphanumeric characters (that is, A-Z and 0-9). The system checks this restriction for the //OUTPUT statement, but has never checked this restriction for the //*FORMAT. When CTD installs maintenance to the JES3 system (we hope by the end of 1988), the system will check this restriction and will reject jobs whose FORMS parameter contains characters that are not alphanumeric.

CTD has renamed some FORMS names that are available for public use (see Table 1); deleting the special characters from the FORMS names. ISS has renamed the FORMS names in the administrative systems maintained by them. Both the old and the new names will work until we install the JES3 maintenance. Users should update their JCL with the new names.

Table 1: FORMS Names

Old FORMS Name	New FORMS Name	Description
LBL4X1.5	LBL4X15	labels 4" x 1.5"
LBL3.5X1	LBL35X1	labels 3.5" x 1"

PMS IV TO BE REMOVED FROM MVS

On October 1, 1988, the Computing and Telecommunications Division (CTD) will remove the Project Management System IV (PMS IV) from the MVS system, because of infrequent usage and to reduce costs. CTD will also remove versions of the Ezpert plotting program specifically tailored for PMS IV. CTD has notified recent PMS IV users.

The Engineering Division is evaluating the IBM Application System (AS) in CMS for managing large projects. The version of Ezpert tailored for AS will continue to be available. To learn more about the project management capabilities of AS, contact Charles Miller of the Project Management Office at extension 2-4564.

TELECOMMUNICATIONS NEWS

NJE CLIENT SERVICES NOW AVAILABLE TO VAX DECNET NODES

Final testing is now underway on the software that the Computing and Telecommunications Division (CTD) is developing to provide Network Job Entry (NJE) network services for computers connected to the Digital Equipment Corporation network (DECnet). CTD undertook this project to bring the NJE services to a large class of VAX/VMS computers at Argonne that would otherwise be excluded. The development project members include staff from CTD and the Electronics Department. The NJE services include electronic mail to Argonne computers, computers in BITnet, computers in networks with gateways to BITnet, sending files to Argonne printers and graphics devices, submission of jobs to VMS and IBM batch and print queues, and transferring files between users. CTD will enroll VAX/VMS client systems in the BITnet network so that BITnet users can address those systems directly.

To use the NJE client services users must first obtain the NJE client software from CTD and install it on their VMS system. Client users additionally must identify a "Server" VAX DECnet computer with a peer-to-peer connection to the IBM MVS system. The central VAX 8700 computer or any divisional VAX with peer-to-peer NJE networking can handle network traffic for client systems. Monthly charges for NJE client services will be based on where client systems are connected and several other factors, including physical links (ports and wiring), dedicated resources for client nodes (spooling areas), and network traffic. The schedule of charges (see "NJE Service Rates Revised" below) is intended to encourage single user VMS workstations and multiple user VMS systems to participate in the NJE network.

NJE SERVICE RATES REVISED

The Computing and Telecommunications Division has proposed revised rates for IBM and DEC VAX computers that participate in the Laboratory's NJE network. Peer-to-Peer network charges for 1,200 to 9,600 bits per second have been reduced. A new network traffic charge will apply to file transfers and electronic mail. Rates corresponding to the new VAX NJE client service have been introduced. Table 2 lists the revised proposed rates for NJE services that will be implemented upon approval from the Chief Financial Officer.

Table 2: New NJE Monthly Service Rates

Peer-To-Peer Service		
1,200 to 9,600 bits per second		$350
19.2 to 50 kilobits per second		$450
VAX NJE Client Service	single user	multiple user
connection to divisional VAX	$25	$150
connection to central VAX	$25	$200
Network Traffic		
transfer per thousand card images		$0.10

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,425 computers at over 850 sites. Since the last *Newsletter* article in August 1988, the following universities and organizations have joined BITnet:

Appalachian State University
Davidson College
Lewis and Clark College
Medical College of Wisconsin
National Chia-Tung University--Taiwan
Naval Health Sciences Education and
  Training Command Naval Medical Data
  Services Center
Ohio Wesleyan University
Pacific Lutheran University
Reed College
Saint Mary's University of San Antonio
State University of New York Health Sciences
  Center--Brooklyn
Tokyo International University
University of Tours
University of Wisconsin--Oshkosh
University of Wisconsin--Stout

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS):

```
HELP BITNET NODES
```

Or enter (on the VAX 8700):

```
HELP BITNET NODES
```

Or enter (in Wylbur):

```
HELP BITNET
```

DOE GERMANTOWN NJE NODENAMES HAVE CHANGED

The nodenames for the Department of Energy (DOE) Network Job Entry (NJE) Germantown nodes that are accessible from the Argonne NJE file transfer network have changed. The DOE-Germantown NJE nodenames are in Table 3. The old nodename appears for those nodes that CTD previously had defined to RSCS and JES3. Table 4 shows other nodes that are accessible via the Germantown nodes. You can send electronic mail and files to recipients at these nodes just as you would send electronic mail and files to other BITnet nodes.

There is insufficient demand now to install a dedicated NJE connection between Argonne computers and the Department of Energy (at Germantown, Maryland) computers. However, CTD will continue to operate a dial-up NJE network connection to transfer electronic mail, files, MVS batch jobs, and output between Argonne and DOE-Germantown. Operators establish a dial-up connection to Germantown at least once a day. Users can initiate electronic mail and file transfers anytime. However, these transfers will not occur until CTD has established the dial-up connection. When the once-a-day service does not meet your needs, call extension 2-5421 to request a transfer of the data.

Table 3: DOE Germantown NJE Nodenames

NEW NODENAME	OLD NODENAME	DESCRIPTION
DOE	GT	Central Batch at Germantown
DOEVM		
DOEXA		Test System
DOEVMXA		Old VM/XA SF
DOECE		Conservation & Renewable Energy
DOECP	CP	Congressional & Public Affairs
DOECX	CALC	Support Contractor
DOEDP		Defense Programs
DOEEH		Environment, Safety, & Health
DOEER	ER	Energy Research
DOEFE		Fossil Energy
DOEGC		General Counsel
DOEIE		International Affairs & Emergencies
DOEIG		Inspector General
DOEMA	MA	Management and Administration
DOENE	NE	Nuclear Energy
DOEPE		Policy, Planning, & Analysis
DOERW		Radioactive Waste Management

Table 4: Nodes Accessible Via Germantown Nodes

EIA	Energy Information Administration
EIAVM	Energy Information Administration
EIADRA	Energy Information Administration
SPRMVS	Strategic Petroleum Reserve Office
FERC	Federal Energy Regulatory Commission
NJI41	Bonneville Power Administration (Vancouver, Washington)
RSCS41	Bonneville Power Administration (Portland, Oregon)
RSCS42	Bonneville Power Administration

VAX/VMS NEWS

REVISED VAX 8700 BATCH QUEUE NAMES

The Computing and Telecommunications Division has changed the names of the batch queues on the VAX 8700 computer. Table 5 lists the old and new queue names. The new names are intended to permit batch jobs to be scheduled on a priority basis off prime shift. Since interactive service will be favored during prime shift, only **SHORT_W_BATCH** and **W_BATCH** queues will be available. Jobs in all queues will be eligible to run during the night and weekend shifts. However, the system will schedule higher priority jobs first. There is no longer an equivalent of the **STANDBY_BATCH** queue. For a short time, both old and revised queue names will work. However, users should begin using the new queue names. The proposed rates for VAX 8700 batch services are described in the Rate Sheets attached to the back of this *Newsletter*.

Table 5: VAX 8700 Queue Names

New	Old
SHORT_W_BATCH	SHORT_DAY_BATCH
W_BATCH	DAY_BATCH
X_BATCH	NIGHT_BATCH
Y_BATCH	WEEKEND_BATCH
SPECIAL_X_BATCH	SPECIAL_ARRANGEMENT_BATCH
(no equivalent)	STANDBY_BATCH

TEXT EDITORS ON THE VAX CLUSTER

The Computing and Telecommunications Division (CTD) has installed two text editors--**GNU-EMACS** and **WYLVAX**--on the central VAX cluster to make the computing environment more hospitable for occasional users who are not familiar with the native VMS editors. This article describes editors that are mainly for text manipulation and does not cover special-purpose text editors (such as those that are used with the Mass-11 word processing system).

Table 6 gives a summary of the text editors on the central VAX cluster:

Table 6: Text Editors on the Central VAX Cluster

EDITOR	VENDOR	STRENGTHS
ed	Digital	Pattern matching
EDT	Digital	Line or screen
EVE	Digital	Extensible
GNU-EMACS	Proprietary	Extensible, Language sensitive
LSEDIT	Digital	Language sensitive
sed	Digital	Pattern matching
SUMSLP	Digital	Updating tool
TECO	Digital	Familiar to PDP-11 users
WYLVAX	Public Domain	Familiar to MVS Wylbur users

GNU-EMACS is a full screen editor that has gained a wide following in the Unix computing community. **WYLVAX** is a Wylbur-style line editor from the Stanford Linear Accelerator Center that has many of the editing features of the standard Wylbur editor.

The native VMS editors are **EDT**, **EVE**, **SUMSLP**, and **TECO.** Proprietary editors available only on the VAX 8700 are **LSEDIT** and the DEC-Shell (Unix) editors **ed** and **sed.** The editors available on the entire cluster are **EMACS** and **WYLVAX.** The following sections briefly describe each editor.

EDT was the only VMS full screen editor until Digital developed **EVE. EDT** has a line-editing mode and a "change" mode that provides full screen editing. **EDT** is also available in the PDP-11/RSX computing environment.

EVE, the "extensible VAX editor," is full screen and differs from **EDT** in that it may be programmed to emulate other editors. **EVE** is written in the Text Processing Utility (TPU) language. CTD recommends **EVE**, because it is more efficient. Also, Digital is still developing **EVE** but has stopped further development of **EDT**. Shortly, with the advent of VMS 5.0, **EVE** will have all of the **EDT** keypad definitions. To learn about **EVE**, use the online computer-based instruction course. Enter:

```
$ RUN EVECAI
```

Allow yourself several hours to complete the course. You may interrupt the instruction session and resume later where you left off.

SUMSLP is a useful "stream" editor that accepts directive files generated with the DIFFERENCES utility. This editor is often used to "patch" program or other text files.

TECO is a powerful editor available in the PDP-11 computing environment. A VMS native version of **TECO** is available for the VAX.

LSEDIT is the proprietary "Language Sensitive Editor" that uses templates to add language-specific syntax to your editing session. Templates are available on the VAX 8700 for all VAX languages, Datatrieve, and other data descriptions. Users can also write and customize templates for other languages (for example, SAS). Users can use **LSEDIT** with existing source code or regular text files, in which case templates are not necessary. **LSE** has the **ETD** keypad definitions.

The **ed** and **sed** editors are the Version 7 Unix line and stream editors available in the DECShell (Unix) environment on the VAX 8700. These editors have very powerful pattern-matching capabilities.

GNU-EMACS is the **EMACS** editor from the Free Software Foundation that is available for many computing systems. Like **EVE, EMACS** has features that permit easy customization by the user. The central VAX cluster has two other **EMACS** editors: one in the Prolog system and one in the MACSYMA/Lisp system.

WYLVAX is the Wylbur-style line editor written for the VAX at the Stanford Linear Accelerator Center. **WYLVAX** provides a familiar tool for occasional users of the VAX cluster who have used Wylbur.

VMS HELP is available for all of the editors, either at the DCL prompt ($) or from within the editor itself (press the PF2 key in full screen editors).

GNU-EMACS TEXT EDITOR AVAILABLE ON THE VAX CLUSTER

The EMACS text editor is now available on both the VAX 8700 and the VAX 8250 Cray gateway. This version is called GNU-EMACS (written by Richard Stallman, the author of the original version). GNU-EMACS may be of interest to you if you have used an EMACS editor on a Unix system. Likewise, if you are a UNICOS user, you may find EMACS (or its VT emulator) to be a useful and familiar program development tool for developing or porting codes to the Cray.

EMACS is a powerful screen-oriented editor that provides you a special computing environment. With EMACS, you can edit several files concurrently, open multiple windows on the same or different text documents, and interface to the VMS mail utility. EMACS is also a language sensitive editor. It can recognize constructs and formats used by the language (for example, Fortran, C, and Lisp). With a Lisp macro capability, EMACS is also an extensible editor.

To use the GNU version of EMACS, run the SETUP function to define EMACS to your process:

```
$ SETUP GNUEMACS
```

SETUP also activates an EMACS HELP library for you. To use the library, enter:

```
$ HELP EMACS
```

For more information on the SETUP function, see the EMACS HELP subtopic "Setup."

To invoke EMACS (see HELP subtopic "Running_emacs,"), enter:

```
$ EMACS myfile
```

where "myfile" is the text file you want to edit.

Common terminal types are "mac" (Macintosh with Versaterm), "vt100" (VT100), "vt200" (VT200), "v300" (Visual 300), "v550" (Visual

550), "adm3a" (ADM 3A). See `emacs_library:[etc]termcap.dat` to determine which terminals and terminal features are included ("emacs_library" is a logical name defined during the SETUP process). The default terminal type is "vt100." The default works equally well for vt200 compatible terminals. Refer to the HELP subtopic "Terminal_types" for more information.

Several EMACS features are not implemented on the VMS version. For a list of these features, see the HELP subtopic "Unimplemented_features." Several locally provided EMACS files appear in the directory "emacs_library:[local]." For example, an EMACS initialization file (.emacs) appears there. This initialization file includes commands to bind frequently used EMACS commands to the VT100 keypad. It also defines key sequences that are useful for editing Fortran programs.

GNU-EMACS is available "as is" for people already familiar with EMACS. User Services does not plan to provide instruction or assistance with GNU-EMACS.

BITS & BYTES

PL/I CHECKOUT COMPILER TO BE REMOVED FROM CMS AND MVS

On October 1, 1988, the Computing and Telecommunications Division (CTD) will remove the Programming Language/I (PL/I) Checkout Compiler from the MVS and CMS systems, because of infrequent usage and to reduce costs. CTD has notified recent PL/I Checkout Compiler users. The PL/I Optimizing Compiler will continue to be available in both CMS and MVS.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

Computing Services periodically publishes manuals to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing Services Documents

Using the Central VAX 8700 Computer at ANL (ANL/TM 455, Revision 1) is a reference document for users of the Argonne National Laboratory central VAX 8700 computer. It provides information on how to use the computers in the central VAX cluster and how to use the VAX/VMS system for general interactive and batch use. This manual also describes the software and graphics packages available on the central VAX 8700. Two appendices explain the Computing and Telecommunications Division policy for user accounts and how to use the VAX supercomputer gateway to the Argonne Cray X-MP/14. Readers will need some knowledge of VMS. When appropriate, this edition refers to information in other documents; it does not ordinarily duplicate information available in vendor documents. This document supersedes the first printing of *Using the Central VAX 8700 Computer at ANL* (ANL/TM 455).

A Plan for Administrative Computing at ANL: FY1989 Through FY1991 (ANL/TM 464) identifies the components of administrative computing at ANL, provides guidelines for development of new or enhanced systems, and outlines the procedures by which management determines the structure and organization of administrative computing systems. The *Plan* proceeds from the premise that the administrative information is a Laboratory asset; therefore, the Laboratory must know the quality, characteristics, availability, costs, and location of information as it would any other asset. The *Plan* incorporates detailed summaries of specific projects proposed for the three-year span and broader recommendations for the course of administrative computing development over a ten-year span. The document includes a listing of all known administrative computing systems in use onsite. Charts of expenditures for both user-funded and Laboratory-funded systems provide a complete statement of the Laboratory's financial commitment to administrative computing.

Computer Associates, Inc. Documents

The *CA-TELLAGRAF Bulletin of Release Information on Enhancement Fixes, Version 6.1* (UD 99 TG 610BS) describes the new features that have been added and the software difficulties that have been corrected in Tellagraf 6.1 and 6.0. This *Bulletin* updates the *CA-Tellagraf User's Manual.*

IBM Documents

The *IBM 3380 Direct Access Storage: Reference Summary* (GX26-1678-4) describes capacity and speed data for the IBM 3380 Direct Access Storage Devices.

Other Vendor Documents

TYMnet Access Locations (C-200LOC) is a directory that will help you locate the telephone number that you should call for access to TYMnet. This pamphlet contains listings and telephone numbers for more than 725 TYMnet access locations in the United States, Canada, the United Kingdom, Japan, and the U.S. territories of Guam, Puerto Rico, and Saipan (Northern Marianas). The directory also includes information and access locations for TymDial 9.6. TymDial 9.6 is a new asynchronous access service that allows you to access the TYMnet network at speeds up to 9600 bps. This publication supercedes the September 1987 printing of *TYMnet Access Locations.*

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD SEPTEMBER 6, 1988

The chairman, Dotti Bingaman (Energy and Environmental Systems) opened the meeting at 3:05 p.m.

Dotti announced the results of the user poll on the setup of the new Hydra Protocol Converter. Based on a 37 to 27 majority, the upgraded Hydra will retain the same Insert Mode characteristics as before.

FY1989 Charging and Scheduling. Mike Boxberger (Computing and Telecommunications) discussed the status of the budget and the rate setting process for FY1989. CTD is using cost and recovery as part of the budget process, with each major service class (Cray, IBM, VAX, and peripherals) recovering its cost in an assumed equilibrium model.

Mike projects the central computing budget for FY1989 to be $9,014,000 (which is about $1,039,000 greater than FY1988 costs). This projection includes the cost for 70 Full Time Equivalent (FTE) positions. Based on the approved FY1989 funding and Incentive Plan that replaced this year's use of Floors, CTD would under recover the costs of operation by about $2.3 million. To offset this deficit and to provide the pool for the Incentive Plan paybacks, the Laboratory indirect rate would increase by approximately 0.8 to 1.4 percent. However, CTD would set rates to attempt to recover the total costs at equilibrium conditions.

The following base levels were set by using the May through June 1988 usage figures:

`EEBR`	`$960K`
`APS`	`$48K`
`PR`	`$1,047K`
`ER`	`$2,190K`

There was a discussion about May and June 1988 not being good months to determine an equilibrium model and the base levels because of the availability of the Cray. However, the effects of Floors and the summer made July and August 1988 even more unusual, and some type of base had to be set up. Everyone agreed that there would be no data on accurate usage patterns until after October 1, 1988. According to the equilibrium model and one set of proposed rates, the cost recoveries are:

`CRAY`	`$3.5M (over by $70.1K)`
`IBM`	`$2.2M (over by $67.5K)`
`VAX`	`$0.9M (over by $53.2K)`
`Peripherals`	`$1.6M (under by $190.8K)`

All computer classes of service would over recover to subsidize the expected under recovery of the peripheral services.

The usage model and rate structure used to generate the above numbers included no shift differential for day, night, weekend, or standby. On the Cray, 60 percent of the work was assumed to run at normal priority with a cost factor of 1, 15 percent at high priority batch with a cost factor of 2, 15 percent at low priority batch with a cost factor of 0.5, and 10 percent interactive with a cost factor of 2.

There was considerable discussion on the numbers used and the removal of both the shift differential and standby class from consideration. This structure might force some people off the computer because of high costs and would leave the system sitting with idle time. Having the same rate structure for high priority batch and interactive might draw more people to interactive use and hinder the batch job processing. Although the users present recognized the need for CTD to recover the costs of operating the system, they generally felt that the rate structures proposed were too limited and would lead to work going undone at the same time leaving the computer idle. Some type of standby class or low cost computing is necessary, even if the base rate per CPU hour had to go up. Users stated that whatever structure eventually was used, a user getting faster service should pay more, unlike the current conditions at night on the Cray.

After the one-and-a-half hour presentation and discussion, the group decided that CTD should look at ways to modify the proposal presented to see if there was a way to handle the major objections and still recover the money.

UNICOS 4.0. Al Hinds (Computing and Telecommunications) gave a quick rundown on the changes in UNICOS 4.0 and plans for initial user testing.

UNICOS 4.0 is necessary to operate the new DS-40 disk system that CTD has ordered for the Cray. In addition, there are improvements in CPU performance measuring, the handling of tapes with additional capability for the use of tapes from Fortran, the Network Queuing System (NQS), and the Front-End Station. The specifics on improvements and changes will be included in *Guide to UNICOS at ANL* (ANL/TM 460).

In addition to these changes, there are several command changes. These changes may require the changing of Shell scripts if the effected commands were used. These changes will also be documented.

A one-day user test is scheduled for Monday, October 17, 1988, beginning at 7:00 a.m. (see "Conversion Schedule for UNICOS 4.0" in the September 1988 *Newsletter).* The system will return to UNICOS 3.0 on Tuesday. If all goes well, UNICOS 4.0 will become the production version on October 24, 1988.

Because of the late hour, the presentation was continued until the next meeting.

Planned Removal of S33B. John Volmer (Computing and Telecommunications) talked about the planned removal of the S33B MVS batch system that runs under VM because of the cost savings and low usage. Currently, it costs $2,000 per month for the MVS license and uses resources that could be allocated for use by CMS. Because of the work that is moving to the Cray, S33A can handle the work currently performed by S33B. The current plan is to remove S33B on September 30, 1988 (see "Secondary MVS/JES3 Processor S33B Being Removed" in this *Newsletter).*

A question was asked about the use of PROGLOOK on the multi-processor S33A. Doug Engert (Computing and Telecommunications) said it should work.

Program Products Considered for Removal. Fred Moszur (Computing and Telecommunications) listed several program products currently maintained that have little or no use. To save money, CTD would like to remove them and to drop the licenses.

The programs under consideration for removal and their cost and usage over the past year are the PL/I Checkout Compiler ($6,900, two users per month on average), CSMP ($1,524, three users per month on average), PMS IV ($1,068, two users), the PMS IV Cost Processor ($1,056, one user), the PMS IV network ($1,992, one user), and the IBM 3277 graphics attachment ($1,584, one user). Other possibilities for future consideration are the older compilers (such as Fortran G1).

There were no objections from the Computer Users Group as long as CTD contacts all users of the software to make sure they have other ways to carry out their work.

Decommissioning of MCS VAX Impact on ARPAnet. Larry Amiot (Computing and Telecommunications) discussed the effects of decommissioning the Mathematics and Computer Science VAX 11/780 would have on ARPAnet; this VAX is currently the gateway to ARPAnet (see "Planned Changes to ANL/ARPAnet Access" in the September 1988 *Newsletter).*

Computing Policy Committee Meeting Report. Dotti Bingaman (Energy and Environmental Systems) reported on the Committee meeting held on August 26, 1988. Dale Koelling (Materials Science) stated that the Computing Policy Committee Technical Review Subcommittee is concerned about new computer acquisitions having serious impacts on our Laboratory-wide network. We need a global network plan, but the CTD networking staff cannot provide the people and the expertise to cover the needs of the entire Laboratory. The Computing Policy Committee Networking

Subcommittee should be reactivated to deal with these difficulties. Larry Price (High Energy Physics), the new Chairman of the Computing Policy Committee Networking Subcommittee, asked for suggestions for new Subcommittee members and said that he would convene a meeting when possible.

Dave Weber (Computing and Telecommunications) displayed a list of his Division's General Purpose Equipment (GPE) Requests for FY1989. The selection criteria used were that the equipment will (1) be of broad, general use that is necessary to replace critically important failing equipment, (2) lead to major improvements in the efficiency of operations, (3) provide important, urgently needed new capabilities, (4) be necessary to maintain new, major ANL initiatives, or (5) lead to substantial operating cost avoidance in the future. CTD expects to be awarded between $600,000 and $700,000 in GPE funds. Major priorities include a cartridge tape system, a disk subsystem upgrade, a communications controller for the IBM computers, and a disk storage subsystem upgrade for the VAX 8700. Among the lower cost priorities are FNAL-UIC T1 Proteon links, a radio page base station, an IBM Transmission Control Protocol/Internet Protocol (TCP/IP) interface, and an X.25 terminal concentrator. Dave also described the new Revenue Recovery Plan, which was discussed at last month's Computer Users Group meeting.

Mike Boxberger (Computing and Telecommunications) presented the proposed CTD budget for FY1989. The Computing Policy Committee decided to postpone discussion of the budget and proposed new computer rates until the next meeting, when the Chief Financial Officer will be present. The Computing Policy Committee also wants feedback from the Computer Users Group on the proposed rate structure.

The meeting adjourned at 5:00 p.m.

Ken Miles, CUG Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD SEPTEMBER 9, 1988

Chairperson Gail Pieper (Mathematics and Computer Science) opened the meeting at 12:10 p.m.

Rich Nixon (Graphic Arts) discussed the Graphic Arts budget request for FY1989, which he has sent to Accounting. The request proposes unit prices for printing, binding, and most photographic products, such as photo-mechanical transfers (PMTs). Rich feels that unit pricing will help ensure that the final cost for a job is the same as the estimate. If Accounting approves unit pricing, Graphic Arts plans to publish a price list soon after the approval.

Bill Jepsen (Graphic Arts) gave a report on the status of new equipment. He described the new collator as "beautiful." It can collate, fold, saddle stitch, and three-hole-punch up to 80 pages (including a cover) in one operation. With the old collator, print-shop staff had to perform these operations separately with different machines. For some jobs, the new collator can halve the time needed for collating and binding. Because of this new capability, Bill plans to phase out stitch-and-tape binding (which is currently used for 52-page to 80-page documents).

The new printing press has arrived, and Bill hopes to have it running soon. Its advantages over the other presses include (1) better copy and ink moisture control, which allow the application of ink to the page to be more uniform, and (2) the use of an improved toner, which allows printing of a finer image. Also, the new press has its own platemaker; however, this feature will be reserved for "quick-and-dirty" jobs because automatic making and loading of printing plates does not permit the operator to inspect them for flaws before their use.

Rich discussed the plans of Graphic Arts for FY1989. He hopes that Graphic Arts can acquire a new computer graphics system. Currently, he envisions a Macintosh-based modular system that can be used for a variety of products. Because the basic Apple Macintosh platform is versatile, the choice of output device is the limiting factor.

Graphic Arts needs to decide what to do with the Texet composition system. The preliminary proposal of Compugraphics for Texet includes replacing Texet with CAPS (which is built around Texet), adding some graphics capabilities, providing a program that allows users to enter and to format documents from remote systems, and providing a better program for translating word-processing files from other systems. After Compugraphics provides more details about these features and other aspects of their plans for Texet, Graphic Arts will be able to make a decision.

Also planned for FY1989 are requests for continued equipment purchases (specifically a new binder and press) and an increase in marketing activities so that users will know about and take advantage of the services and new capabilities of Graphic Arts.

Rich also provided an update on hiring new staff. Graphic Arts has posted an opening for a computer production artist and will begin interviewing soon. This position requires skills in keyline paste-up and computer graphics. Graphic Arts will post the opening for a supervisor for the Customer Service Group soon. After this position is filled, Graphic Arts plans to hire another customer service representative. Also, Graphic Arts plans to evaluate the demand for editing services and to propose hiring an editor if the demand is sufficient (potential customers should contact Rich at extension 2-5600).

The group held elections at the end of this meeting. Bryan Schmidt (Energy and Environmental Systems) is the new chairperson, and Marita Moniger (Energy and Environmental Systems) is the new secretary.

The next Graphic Arts Users Group meeting will be held on Friday, October 14, 1988, at noon in Building 221, Room C-201.

Bryan Schmidt, Graphic Arts Users Group Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD SEPTEMBER 14, 1988

Bob Kampwirth (Materials Science) opened the meeting at 11:03 a.m.

John Davis and Susan Snow (Post Business Systems) described and demonstrated the Montage FR1 film recorder. It connects to the Apple Macintosh Small Computer Systems Interface (SCSI) port; creates high-quality color images on film; and is compatible with most graphics, presentation, and Computer-Aided Design (CAD) packages for the Apple Macintosh. John showed us slides made by using both Cricket Presents and Microsoft Power Point on the Apple Macintosh. He reported that it takes only two or three minutes to get the image onto a slide. When he demonstrated this feature, it took over four minutes, apparently because some special features were not turned off. John recommended that a person have more that one megabyte of random-access memory (RAM) and Multifinder so that the Apple Macintosh can do the imaging in the background while one does other things with the Apple Macintosh. He said that the film recorder field is experiencing a lot of growth with many new products announced and a few (like the Montage FR1 film recorder) already available. The goal of these new products is to cut the cost of making color slides, color viewgraphs, and color prints. This goal is to be achieved while making the process easier and the quality higher. Because of the cost of the equipment ($6,000), most people will still be better off having Graphic Arts do their color work.

As reported two months ago, Lee Wagar (Graphic Arts) has indicated that Graphic Arts is considering the purchase of equipment for making 35mm color slides from Apple Macintosh output after an initial shakedown of the slidemaking hardware establishes a system that is clearly suitable.

The Programmer's Special Interest Group normally meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. There will be no meeting in October 1988. It is anticipated that there will be an Apple Macintosh II Reduced Instruction Set Card (RISC) demonstration in the future. Call John Mattson (Materials Science) at extension 2-5535 for details.

The Excel Special Interest Group normally meets the fourth Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. In September 1988, the meeting will discuss the conversion of a Fortran program to an Excel worksheet. At the October 1988 meeting, the use of function macros in iterative calculations will be demonstrated. Call Ralph Leonard (Chemical Technology) at extension 2-3229 for details.

The October 1988 meeting will be on Wednesday, October 12, 1988. The tentative plan is to have a demonstration of the program called Mathematica. Other meeting ideas were (1) Data Desk Professional from Odessa, (2) Kaleidagraph v 1.1, (3) the latest in equation generators, and (4) Laboratory-wide connection of Apple Macintoshes and VAX/Macintosh connectivity.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing Services), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:14 p.m.

Ralph Leonard, Macintosh Users Group Secretary

WORKLOAD STATISTICS (JULY 29 THROUGH AUGUST 30, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,348	1,345	557
Wylbur	1,626	1,616	517
MVS TSO	54	54	9
CICS	1,626	1,616	64
MVS Batch	2,032	2,024	791
VAX/VMS	334	361	192
Cray	263	277	125
All Systems	2,032	2,024	1,037

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	15,065	2,417	1,786	19,268	36,868.4	132.67
Wylbur	12,070	569	952	13,591	11,477.2	13.17
MVS TSO	27	1	1	29	20.7	0.01
CICS	26	0	0	26	0.0	0.82
VAX/VMS	6,843	631	515	7,989	8,137.7	11.27
Cray	1,498	215	204	1,917	964.7	54.39
IBM BATCH						
Class U	11,942	2,379	1,659	15,980	n.a.	40.41
Class W	20,808	2,436	1,960	25,204	n.a.	196.50
Class X	9	1,323	47	1,379	n.a.	67.05
Class Y	0	0	292	292	n.a.	20.34
Class Z	0	0	190	190	n.a.	28.49
Nonmain	14,510	1,600	1,013	17,123	n.a.	0.00
Total	47,269	7,738	5,161	60,168	n.a.	352.79
CRAY BATCH						
Prime	4,607	729	1,162	6,498	n.a.	445.42
Night	15	344	86	445	n.a.	71.44
Weekend	0	0	158	158	n.a.	19.81
Standby	0	0	0	0	n.a.	0.00
Total	4,622	1,073	1,406	7,101	n.a.	536.67
VMS BATCH						
Prime	559	214	121	894	n.a.	116.39
Night	0	22	1	23	n.a.	0.93
Weekend	1	0	23	24	n.a.	1.05
Standby	0	0	0	0	n.a.	0.00
Total	560	236	145	941	n.a.	118.37

INPUT/OUTPUT

Lines Printed	
Local	70,498,744
Remote	72,838,724
Fiche	33,907,329
Cards Punched-Local Only	29,071
Tape Mounts	10,784
Microfiche Developed	4,297
Microfiche Frames Developed	757,382

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	155	n.a.
Matrix 35mm Color	67	293
Matrix-8 x 10	5	6
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	28	249
35mm Black/White/Sprocketed	1	7
35mm Color	1	8
16mm Black/White/Sprocketed	13	13,509
16mm Color	0	0
105mm Black/White/Unsprocketed	0	0

DATA MANAGEMENT

Tapes Stored	22,527
New Tapes Saved	1,285
Tapes Released	1,785
Datasets Exported to Tape	2,726
Datasets Imported from Tape	560

* n.a. = not applicable

MVS BATCH SCHEDULING PERFORMANCE FROM JULY 29 AT 7:00 A.M. TO AUGUST 30, 1988, AT 7:00 A.M.

	STARTED IN PRIME SHIFT	STARTED IN OVERNIGHT SHIFT	STARTED IN WEEKEND SHIFT	TOTAL OF ALL SHIFTS
CLASS U EXPEDITED BATCH				
Number Started	11,942	2,379	1,659	15,980
Number Started in 12 Minutes	11,485	1,706	1,417	14,608
Percent Started in 12 Minutes	96.2	71.7	85.4	91.4
25th Percentile Start Delay (Minutes)	0.1	0.1	0.1	0.1
50th Percentile Start Delay (Minutes)	0.1	0.4	0.1	0.1
75th Percentile Start Delay (Minutes)	0.2	15.8	0.9	0.3
90th Percentile Start Delay (Minutes)	1.8	45.5	22.5	8.0
99th Percentile Start Delay (Minutes)	78.6	227.6	227.0	107.2
CLASS W REGULAR BATCH				
Number Started	20,808	2,436	1,960	25,204
Number Started in 2 Hours	20,656	2,068	1,943	24,667
Percent Started in 2 Hours	99.3	84.9	99.1	97.9
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	0.2	0.0	0.0
90th Percentile Start Delay (Hours)	0.1	4.2	0.0	0.2
99th Percentile Start Delay (Hours)	1.6	17.6	1.5	4.5
CLASS X DEFERRED OVERNIGHT BATCH				
Number Started	9	1,323	47	1,379
Number Started in 15 Hours	9	1,319	47	1,375
Percent Started in 15 Hours	100.0	99.7	100.0	99.7
25th Percentile Start Delay (Hours)	5.4	2.7	0.0	2.5
50th Percentile Start Delay (Hours)	9.3	4.4	0.0	4.2
75th Percentile Start Delay (Hours)	9.7	8.3	0.0	8.2
90th Percentile Start Delay (Hours)	11.9	9.7	0.1	9.7
99th Percentile Start Delay (Hours)	11.9	13.0	6.4	12.3
CLASS Y DEFERRED WEEKEND BATCH				
Number Started	0	0	292	292
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	15.5	15.5
75th Percentile Start Delay (Hours)	0.0	0.0	23.2	23.2
90th Percentile Start Delay (Hours)	0.0	0.0	45.0	45.0
99th Percentile Start Delay (Hours)	0.0	0.0	95.5	95.5
CLASS Z LIMITED DEFERRED WEEKEND BATCH				
Number Started	0	0	190	190
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	0.0	18.2	18.2
90th Percentile Start Delay (Hours)	0.0	0.0	42.6	42.6
99th Percentile Start Delay (Hours)	0.0	0.0	111.5	111.5
TOTAL OF ALL CLASSES				
Number Started	32,759	6,138	4,148	43,045

AVAILABILITY STATISTICS, BY MACHINE (JULY 29 THROUGH AUGUST 30, 1988)

	Monthly Totals	Scheduled			Unscheduled		
		Hdware	Sftware	Other	Hdware	Sftware	Other
			YELLOW IBM 3033				
All Shifts							
Interruptions	20	1	11		2	3	3
Hrs Unavailable	22.61	0.90	13.50		1.11	4.00	3.10
MTF/Unscheduled	96.17				384.69	256.46	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15	1	11		1	1	1
Hrs Unavailable	16.11	0.90	13.50		0.43	0.51	0.76
MTF/Unscheduled	86.62				259.88	259.88	
			RED IBM 3033				
All Shifts							
Interruptions	11	2	4		2	2	1
Hrs Unavailable	7.46	2.11	2.31		0.83	0.28	1.91
MTF/Unscheduled	156.90				392.26	392.26	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9	2	4		2	1	
Hrs Unavailable	5.43	2.11	2.31		0.83	0.16	
MTF/Unscheduled	90.18				135.28	270.56	

AVAILABILITY STATISTICS, BY SERVICE (JULY 29 THROUGH AUGUST 30, 1988)

	Monthly Totals	Scheduled			Unscheduled		
		Hdware	Sftware	Other	Hdware	Sftware	Other
			CMS				
All Shifts							
Interruptions	11	2	4		2	2	1
Hrs Unavailable	7.46	2.11	2.31		0.83	0.28	1.91
MTF/Unscheduled	156.90				392.26	392.26	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9	2	4		2	1	
Hrs Unavailable	5.43	2.11	2.31		0.83	0.16	
MTF/Unscheduled	90.18				135.28	270.56	
			WYLBUR				
All Shifts							
Interruptions	23	1	11		5	3	3
Hrs Unavailable	25.53	1.01	14.80		2.05	4.05	3.61
MTF/Unscheduled	69.67				153.29	255.48	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	18	1	11		4	1	1
Hrs Unavailable	18.76	1.01	14.80		1.36	0.51	1.06
MTF/Unscheduled	42.87				64.30	257.23	
			MVS TSO				
All Shifts							
Interruptions	22	1	11		4	3	3
Hrs Unavailable	25.53	1.01	14.80		1.96	4.13	3.61
MTF/Unscheduled	76.64				191.61	255.48	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	17	1	11		3	1	1
Hrs Unavailable	18.68	1.01	14.80		1.28	0.51	1.06
MTF/Unscheduled	51.46				85.77	257.31	
			JES3				
All Shifts							
Interruptions	20	1	11		2	3	3
Hrs Unavailable	23.10	0.93	13.68		1.16	4.03	3.28
MTF/Unscheduled	96.11				384.45	256.30	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15	1	11		1	1	1
Hrs Unavailable	16.38	0.93	13.68		0.48	0.51	0.76
MTF/Unscheduled	86.53				259.61	259.61	
			CICS				
All Shifts							
Interruptions	3				2		1
Hrs Unavailable	2.05				1.08		0.96
MTF/Unscheduled	263.31				394.97		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3				2		1
Hrs Unavailable	2.05				1.08		0.96
MTF/Unscheduled	91.31				136.97		
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	4		2				2
Hrs Unavailable	3.83		2.91				0.91
MTF/Unscheduled	394.08						
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	3		2				1
Hrs Unavailable	3.16		2.91				0.25
MTF/Unscheduled	272.83						
			CRAY				
All Shifts							
Interruptions	25	6	6		4	6	3
Hrs Unavailable	78.11	14.25	2.98		2.45	1.43	57.00
MTF/Unscheduled	54.91				178.47	118.98	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	17		6		4	5	2
Hrs Unavailable	60.61		2.98		2.45	1.18	54.00
MTF/Unscheduled	19.58				53.84	43.07	

COMPUTING CENTER USE IN DOLLARS BY COST CENTER (JULY 29 THROUGH AUGUST 30, 1988)

COST	CENTER	BATCH	WYLBUR	CMS	MVS TSO	VAX/VMS	CRAY	DISK	OTHER	TOTAL
102	EBR-AW	1,264	1,027	112			2,618	2,891	458	8,369
104	EBR-IL	1,924	760	833		49	2	3,170	1,435	8,172
105	MSO	1,525	561	164		2,928	71,638	4,500	3,002	84,319
107	CMT	1,819	389	1,273		138	0	1,610	14,554	19,783
109	PHY	458	753	2,128		740	4,021	3,405	2,252	13,756
110	BIM	1,213	296	1,969	6	887	673	5,457	2,468	12,970
112	RAS	12,772	6,404	2,131		434	10,088	8,181	5,454	45,465
113	REE-SRF	90	10					11	21	132
114	MCT	1,642	727	2,512		1,410	3	4,494	2,413	13,202
115	ENG-IL	917	222	939		21	111	1,123	1,033	4,366
116	AP-IL	14,628	6,371	2,681		1,808	6,499	13,739	4,010	49,735
117	AP-AW	4,428	1,204				1,145	3,878	231	10,886
118	REE-AW	3,414	1,085	517			1	2,786	102	7,906
119	AL-AW								24	24
120	CHM	495	191	75	0	7,890	1,074	3,308	1,714	14,747
130	APS	772	0	227		1,272		2,182	495	4,949
136	PNS	244	27	12		181	246	228	1,705	2,641
137	HEP	360	8	622	5	299	19,941	3,639	-13,914	10,960
139	DEP	304	42	629		20		664	193	1,852
143	SSD-EL	119	6	70		2		128	1,748	2,075
145	MCS	31	4	28		2	17,221	4,753	4,790	26,830
148	HO	367	40	319				978	153	1,858
149	ER	521	137	822		97	344	2,527	1,146	5,594
150	SPM	121	1	47				198	9	376
161	TIS	3,170	43	15				788	348	4,364
171	RPO	199	39					133	73	444
174	EEP	298	36					73	26	432
178	FP	94	6	7		0		401	242	751
190	EES	14,471	3,651	1,778		5,719	806	22,705	9,218	58,349
197	IEP	557	12	348		0		152	43	1,112
201	OTO	13	1	182				421	281	897
202	OPS	15	1	12				47	104	179
210	SSO-CS	72	5	168				63	77	386
211	ENG-DE							148	27	175
216	SSD	279	24	79				189	80	652
222	SSD-LF								24	24
232	SEC	13	0	5				550	46	615
234	SSO-HP	11	2	15				212	35	275
235	SSO-OHS	375	15	143				798	97	1,427
236	OHS-FD								24	24
245	CTD	5,635	707	1,223				7,459	4,301	19,325
246	TIS-NESC	59	9	315				80	956	1,421
247	SSO-COM	638	48	742				1,251	602	3,281
260	SSO-GA	60		91				201	966	1,319
269	CMT-AC	86	11	7		0		96	57	258
271	OTO-RPA	412	37	125				235	142	950
272	APS			2				20	0	22
273	OTO-PR	40	4	188				55	32	318
274	OTD-EET	45	1	24				142	54	266
275	OPA	87	1	286				290	37	700
276	OPA-MP	29	2	4				48	2	85
315	SSD-MS	184	22	2,324				1,720	422	4,671
316	PFS-VM	142	2					65	66	275
317	PFS-OR	67	1	7				21	25	121
319	SSD-TVL			196				13	24	234
322	SSO-PRO							67	35	102
333	QAO-PQ	48	8					171	60	287
336	QAD-IN	20								20
400	CR-CTR	22,656	1,577	973				23,349	2,188	50,743
401	CR-ACT	10,339	1,061	255				11,238	318	23,210
402	OCF-OE							20	100	120
403	CR-BUD								24	24
410	HR	2,234	255	8,100				5,259	1,029	16,877
412	AAP	22		131				108	109	370
501	PFS-BM	34	2					49	62	147
502	PFS-IN								24	24
503	PFS-GR								24	24
504	PFS-CU								24	24
505	PFS-WMO			28				67	49	144
506	PFS-PMO	256	10	94				236	50	646
510	PFS-US								38	38
512	PFS-FPE	242	72	47				758	95	1,214
530	AW-SMO	105	4	4				54	25	191
531	AW-HR		9	212				80	24	325
532	AW-SPM	763	18	483	25			722	167	2,178
533	AW-ACT								24	24
534	AW-PUR							20	24	44
535	AW-SEC							34	24	58
536	AW-SS	22	6	5				284	25	342
537	AW-IS								24	24
538	AW-MHO	0	42	149				101	24	317
550	AW-CAS	245	20	56				130	24	474
551	AW-RM							13	24	37
554	AW-MS			20				24	24	68
556	AW-SE	137	42	92				170	24	466
557	AW-PS			86				75	24	185
558	AW-PS							7		7
559	AW-FS								24	24
561	QAD-AW							13	25	38
563	AW-TRP								24	24
730	WPWOJ								15,400	15,400
750	OUTSIDE	545	532				1,243	526	540	3,386
751	FNAL	2,966	0	15				1,492	436	4,909
752	NAVY	3,345	1,188	7,652				7,491	-1,841	17,836
753	METC			2				40	600	642
754	OOE-CH		0					6	117	124
757	COLLABOR	21	28	301				433	487	1,269
		--------	--------	--------	--------	--------	--------	--------	--------	--------
TOTAL	CHARGE	$120,480	$29,821	$45,099	$36	$23,898	$137,675	$165,264	$74,451	$596,724
245	CTO	9,831	2,322	80,338	3	5,974	8,404	34,270	32,881	174,023
800	CTO-OPS	25,880	797	24,713	27	5,143	627	3,764	6,902	67,853
		--------	--------	--------	--------	--------	--------	--------	--------	--------
TOTAL	NO CHARGE	$35,711	$3,119	$105,051	$30	$11,117	$9,031	$38,033	$39,783	$241,876

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 312)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	6-7463	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	6-7005	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	6-7005	972-7612
300 Bits Per Second	2-7603	6-7005	972-7603
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	6-8700	972-8700
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
ARPAnet Data Communications Network			
1,200 to 2,400 Bits Per Second Full-Duplex	2-7490	n.a.	972-7490

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**	**ARPAnet**
Monday to Thursday	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

* Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

SUBJECT INDEX FOR CALENDAR YEAR 1988 (10/88)

These entries refer to *Newsletters* published in 1988. All previous *Newsletters* are indexed in the December 1987 issue of the *Newsletter* or use the LOOKUP command in CMS, Wylbur, and distributed VAX computers.

- Account aliases
  - VAX NJE users may specify for MVS batch jobs ... 2518
- Administrative Long-Range Plan ... 2559
- Administrative systems disaster recovery plan ... 2578
- Advanced Computing Research Facility (ACRF) ... 2513
  - parallel computing class ... 2467, 2478, 2487, 2499, 2514, 2525, 2577
  - programming techniques seminar ... 2514, 2525
  - two-week Institute in parallel computing ... 2525
  - update ... 2478
- Advanced Computing Seminars ... 2489, 2500, 2577
- Answer/DB
  - computer-based training course available in CMS ... 2479
- ANSYS Structural Analysis Program
  - available on the VAX 8700 ... 2570
  - to move from MVS batch to VAX 8700 ... 2543
- Apple Computer
  - MacKermit Version 0.9(40) available for the Macintosh ... 2572
- Apple LaserWriter
  - upgrade kit available ... 2487
- Application System
  - Project Management Office evaluation ... 2497
- ARPAnet
  - ANL access changes ... 2568
  - BITnet gateway changes ... 2458
- Asynchronous Data Interface (ADI)
  - use MKO with ... 2531

- Biomedical Computer Programs (BMDP)
  - BMDP-87 ... 2480
- BITnet
  - discussion groups available ... 2532
  - network ... 2467, 2493, 2518, 2550, 2584
- BLOWUP
  - available on color plotter ... 2489

- CAI (Computer-aided instruction)
  - available for Datatrieve ... 2519, 2571
  - available for EVE ... 2519
- CalComp
  - last pen plotter decommissioned ... 2503
- CalComp 5835XP color plotter
  - BLOWUP feature available ... 2489
  - STACK3 feature available ... 2489
- CAL580
  - old CalComp plotter decommissioned ... 2503
- CAL780
  - old CalComp plotter decommissioned ... 2503
- CAL936
  - old CalComp plotter decommissioned ... 2503
- CBT ... (see Computer-based training)
- CICS
  - computer-based training courses available in CMS ... 2559
  - new application menu screen ... 2526
  - new screen planned ... 2487
- CMS
  - Computer Graphics Metafile (CGM) graphics capabilities available for testing ... 2547
  - computer-based training (CBT) courses available ... 2559
  - Disspla 10.5 available for testing ... 2502
  - Kermit upgrade ... 2545
  - PL/I Checkout Compiler removal ... 2588
  - PL/I Optimizing Compiler available for testing ... &syspag
  - Speakeasy IV Version Epsilon available for testing ... 2526
  - Tellagraf Version 6.1 available for testing ... 2502
  - upgrade to Release 5 ... 2480
  - VM/SP Release 5 available for testing ... 2515
  - Waterloo C (Version 3.0) available for testing ... 2515
- CMS execs
  - TESTCMS ... 2480
- COBOL
  - computer-based training courses available in CMS ... 2559
- Compilers
  - Cray CFT77 Fortran compiler now available ... 2501
- Computer Graphics Metafile (CGM) graphics capabilities available for testing in CMS ... 2547
- Computer Graphics Metafile (CGM) graphics capabilities available for testing in MVS ... 2547
- Computer Graphics Metafile (CGM) graphics capabilities available in VMS ... 2566

- Computer Output and Document Distribution Area (Building 221)
  - renovation of ... 2482
- Computer protection ... 2577
- Computer Users Group
  - current officers and subcommittees ... 2506
- Computer-based training (CBT)
  - available in CMS ... 2559
  - courses ... 2479
  - Language Sensitive Editor computer-based training available ... 2491
- Computing and Telecommunications Division
  - established ... 2543
- Computing Center
  - 1988 holiday schedule ... 2488
- Computing Center service schedule
  - Fourth of July 1988 holiday ... 2513
  - Labor Day 1988 holiday ... 2544
  - Memorial Day 1988 holiday ... 2499
- Computing classes scheduled for April 1988 ... 2488
- Computing classes scheduled for June and July 1988 ... 2514
- Computing classes scheduled for June 1988 ... 2499
- Computing seminar scheduled for October 1988 ... 2577
- Connection Machine
  - acquired by Mathematics and Computer Science Division ... 2513
- Consulting
  - assistance available through electronic mail ... 2543
- Cray UNICOS
  - managing program products ... 2545
  - new CFT compiler available ... 2545
  - standby batch service increased to weeknights ... 2501
- Cray X-MP/14 high performance computer
  - Disspla Version 10.0 installed in UNICOS ... 2501
  - increased UNICOS disk space ... 2528
  - operating schedules for UNICOS ... 2465
  - rates approved ... 2466
  - TCP/IP access for testing ... 2527
  - TCP/IP access to ... 2568
  - test of IBM disks attached to ... 2529
  - testing IBM 3380 disks ... 2561
  - UNICOS 3.0 available ... 2465
  - update ... 2453, 2465
  - VAX/VMS station available for general use ... 2528
  - WAIT time charge suspended ... 2528
- CRWTH ... 2479, 2559
- Cuechart
  - Version 2.1 ... 2502

- Data security ... 2577
- Datatrieve
  - computer-based training courses available in CMS ... 2571
- Datatrieve computer-based instruction available ... 2519
- DECnet
  - NJE service rates revised ... 2584
  - NJE services available to VAX ... 2584
- DFSORT
  - available for testing in MVS batch ... 2549
- Disks
  - attached to Cray X-MP/14 ... 2529
- Disspla
  - Version 10.0 installed in Cray UNICOS ... 2501
- Disspla 10.5
  - available for user testing in CMS ... 2502
  - available for user testing in MVS ... 2529
- Distributed Array Processor (DAP) ... 2478
- Documentation
  - recently updated and published ... 2458, 2480, 2492, 2505, 2537, 2551, 2588
  - UNICOS document available ... 2518

- Electronic mail
  - consulting ... 2543
  - discussion groups available on BITnet ... 2532
- Electronic publishing
  - Texet ... 2478
- EVE computer-based instruction available ... 2519
- Expert systems
  - course in Prolog and basic tools ... 2453
- Ezpert
  - Version 5.5 installed ... 2497

- FETCH command failures ... 2498
- Film developing schedule 7/88 ... 2529
- Financial Management System (FMS) ... 2559
  - fiscal year closing ... 2578
- Focus
  - computer-based training courses available in CMS ... 2479

- Graphics
  - BLOWUP and STACK3 features available on color plotter ... 2489
  - CalComp pen plotter (last one) decommissioned ... 2503
  - Disspla 10.0 installed in Cray UNICOS ... 2501
  - Disspla 10.5 available for testing ... 2502, 2529
  - G1DATA conversion to CA/ISSCO metafiles available ... 2503
  - metafile conversion to CA/ISSCO available ... 2503
  - negatives available from Matrix camera ... 2489
  - SuperImage software for personal computers ... 2456, 2546
  - Tellagraf 6.1 available for testing ... 2502
  - Versatec decommissioning planned ... 2503
  - viewgraphs available from Matrix camera ... 2489
- G1DATA
  - metafile conversion to CA/ISSCO available ... 2503

- Hydra Protocol Converter
  - available as IBM full screen emulator ... 2570
  - available for testing ... 2532
  - available offsite at 2400 baud ... 2490
  - Insert options poll ... 2572
  - new terminal selection menu ... 2532

- IBM Personal Computer
  - recommended Ethernet boards for ... 2537
  - SuperImage graphics software ... 2456
- IBM 3033
  - replacement planning initiated ... 2453
  - task force membership ... 2453
- IBM 3380 disks
  - testing on Cray X-MP/14 ... 2561
- ICUSER
  - computer-based training course available in CMS ... 2479
- IMSL library
  - Converting to Edition 10.0 ... 2565
  - Edition 10.0 available in UNICOS ... 2563
  - IMSL Edition 10.0 compatibility with IMSL on other ANL systems ... 2564
- Integrated Financial System (IFS) ... 2559
  - FY1989 implementation milestones ... 2558
  - update ... 2578
- International Atomic Energy Agency (IAEA)
  - network ... 2572
- Internet
  - conversion to domain names ... 2568
- ISPF
  - computer-based training course available in CMS ... 2479
- Itel disk equipment
  - removal of ... 2456

- JES3
  - some MVS FORMS names changing ... 2583
- Job scheduling
  - UNICOS batch service queues ... 2580
  - UNICOS scheduling by priority ... 2580

- Language Sensitive Editor
  - available on the VAX 8700 computer ... 2491
  - computer-based training available ... 2491
- LaTeX now available on VAX 8700 computer ... 2535
- Librarian
  - Version 3.7 with LIBAUDIT ... 2548
- Local area network (LAN) Ethernet
  - reliability improved ... 2490

- Machine Keyboard Origination (MKO)
  - use with ADIs ... 2531
- MacKermit Version 0.9(40) available for Apple Macintosh ... 2572
- MACSYMA available on the VAX 8700 ... 2534
- Management Information Systems Section, new ... 2558
- Mass-11 word processor available on VAX 8700 ... 2571
- Materials Catalog (MCAT) ... 2500
- Mathematics and Computer Science Division
  - VAX to be decommissioned 9/30/88 ... 2557
- Matrix camera
  - viewgraph development schedule ... 2529
  - viewgraphs and negatives available ... 2489
- MCAT (Materials Catalog ... 2500
- MFEnet
  - upgraded to MFEnet II ... 2570
- MFEnet II ... 2570
- Multiprocessing ... 2478, 2513
- MVS
  - Computer Graphics Metafile (CGM) graphics capabilities available for testing ... 2547
  - DFSORT available for testing ... 2549
  - maximum region size reduced ... 2531
  - PL/I Checkout Compiler removal ... 2588
  - PL/I Optimizing Compiler 5.1 available for testing ... 2549
  - PMS IV to be removed ... 2583
  - some FORMS name changing ... 2583
  - VAX NJE users may specify account alias for batch jobs ... 2518
  - VS Fortran Version 2.3.0 available for testing ... 2567

- NAG library
  - G floating-point NAG library available on VAX 8700 ... 2504
  - Mark 11 Version to be removed from VAX 8700 ... 2551
  - Mark 12 Version available in UNICOS ... 2562

Negative film
    available from Matrix camera ... 2489
NJE nodenames (Germantown) changed ... 2585

Office Systems
    computer-based training courses available in CMS ... 2559

PBX
    acceptance ... 2531
Personal computers
    OS/2 considerations ... 2457
    SuperImage graphics software ... 2456
Phased disk replacement
    elimination of TSPERM ... 2456
    elimination of TSP60n disks ... 2456
PL/I
    Checkout Compiler removal ... 2588
    Optimizing Compiler available for testing in CMS ... 2500
    Optimizing Compiler 5.1 available for testing in MVS batch ... 2549
Printers
    printer in 201 for reports ... 2579
PROFS
    Version 2 Release 2 installation plans ... 2544
Project Management System (PMS IV) ... 2497
    to be removed from MVS ... 2583
Protection
    computer protection ... 2454

RACF
    installation procedure ... 2454
    passwords stored in encoded format ... 2519
Reports, printing in 201 ... 2579

Service rates
    Cray X-MP/14 rates approved ... 2466
    surcharge to non-ANL users increased ... 2487, &syspag, 2557
    UNICOS charging by queue ... 2580
    UNICOS charging by shift ... 2580
Service Schedule
    Computing Center ... 2465
Services (computer maintenance)
    available from Electronics ... 2498
SPCAL580
    old CalComp plotter decommissioned ... 2503
SPCAL780
    old CalComp plotter decommissioned ... 2503
SPCAL936
    old CalComp plotter decommissioned ... 2503
Speakeasy
    IV Version Epsilon available for testing in CMS ... 2526
SPFVERS11
    Versatec decommissioning planned ... 2503
SQL
    computer-based training courses available in CMS ... 2479
Statistical Analysis System
    videotapes available ... 2566
STORECAT ... 2500
Stores Catalog ... 2500
SuperImage graphics software ... 2456, 2490
    hardcopy output ... 2546
S33B
    being removed on 9/30/88 ... 2582

Tape
    available in UNICOS ... 2517
    releasing unneeded ... 2513
TCP/IP
    access to Cray X-MP/14 available ... 2568
    conversion to domain names on the Internet ... 2568
    Cray UNICOS testing ... 2527
Tellagraf
    Version 6.1 available for testing in CMS ... 2502
Terminals
    Hydra Protocol Converter available for testing ... 2532
TESTCMS execs ... 2480
TeX now available on VAX 8700 computer ... 2535
Texet electronic publishing system ... 2478
TSO
    computer-based training course available in CMS ... 2479
TSPERM
    datasets moved to PERM ... 2456
    no longer defined ... 2456
    removed through phased disk replacement ... 2456

- UNICOS
  - classes ... 2465
  - commands
    - ja ... 2579
    - jad, jar ... 2579
    - tape processing ... 2579
  - Cray CFT77 Fortran compiler now available ... 2501
  - documentation available ... 2518
  - file transfer between UNICOS and MVS ... 2581
  - file transfer between UNICOS and VAX/VMS ... 2581
  - IMSL Edition 10.0
    - MATH/LIBRARY ... 2563
    - SFUN/LIBRARY ... 2563
    - STAT/LIBRARY ... 2563
  - IMSL Edition 10.0 Library available ... 2563
  - libraries
    - renamed for UNICOS 4.0 ... 2561
    - shell variables changed ... 2561
  - NAG Mark 12 Library available ... 2562
  - NQS batch job resource defaults ... 2581
  - NQS batch job resource limits ... 2581
  - NQS batch job scheduling by priority ... 2580
  - NQS batch job scheduling changes ... 2580
  - NQS batch job service queues ... 2580
  - operating schedules on Cray ... 2465
  - segldr
    - directives, DUPENTRY ... 2561, 2562, 2563
    - directives, LIB ... 2562, 2563
    - libraries, ANLUTIL ... 2561
    - libraries, Disspla ... 2561
    - libraries, IMSL ... 2561, 2563
    - libraries, NAG ... 2561, 2562
    - libraries, pathnames ... 2561, 2562, 2563
    - libraries, shell variables ... 2561, 2562, 2563
    - libraries, SLATEC ... 2561
    - libraries, specifying ... 2561
    - options ... 2562, 2563
  - tapes available ... 2517
  - update ... 2477
- UNICOS 3.0
  - available on Cray X-MP/14 ... 2465
- UNICOS 3.0.11
  - in production ... 2500
- UNICOS 4.0
  - acquire/fetch/dispose default file format to change ... 2581
  - commands
    - scpqsub, scpreroute ... 2579
    - uscpqsub, uscproute ... 2579
  - commands renamed in ... 2579
  - conversion schedule for ... 2560
  - converting from UNICOS 3.0 ... 2579
  - job accounting command changes ... 2579
  - using tapes in ... 2579
- Unix
  - available on VAX 8700 ... 2470
- User assistance
  - consulting available through electronic mail ... 2543
- USERDETAIL command
  - available on VAX 8700 ... 2473

- VAX Supercomputer Gateway
  - available for general use ... 2528
- VAX Supercomputer Gateway testing ... 2516
- VAX 8700 computer
  - batch queue names ... 2586
  - G Floating-point NAG library available ... 2504
  - Language Sensitive Editor available ... 2491
- VAX 8700 computer system
  - ANSYS available on ... 2570
  - cluster upgraded to Version 4.7 ... 2550
  - computer-based instruction
    - available for Datatrieve ... 2571
    - available for EVE and Datatrieve ... 2519
  - GNU-EMACS text editor available ... 2587
  - group manager role created ... 2505
  - LaTeX now available ... 2535
  - MACSYMA available on ... 2534
  - Mass-11 word processor available ... 2571
  - NAG Mark 11 Library to be removed ... 2551
  - online Desk Calculator ... 2535
  - remote printer service available ... 2534
  - software upgrades ... 2473
  - TeX now available ... 2535
  - text editors available ... 2586
  - Unix available on ... 2470
  - USERDETAIL command available on ... 2473

VAX/VMS
    command line editing ... 2468, 2469
    command line recall ... 2469
    Computer Graphics Metafile (CGM) graphics capabilities available ... 2566
    NJE services now available to DECnet nodes ... 2584
    print capability extended ... 2491
    software distribution kit sharing procedure extended ... 2490
    users may submit account alias for MVS batch jobs ... 2518
Versatec
    planned decommissioning ... 2503
VERS11
    Versatec decommissioning planned ... 2503
Viewgraphs
    available from Matrix camera ... 2489
    schedule ... 2529
Virtual Machine System Product Release 5 (VM/SP5)
    available for testing ... 2515
VM/SP5 ... (see Virtual Machine System Product Release 5)
VS COBOL II
    computer-based training courses available in CMS ... 2559
VS Fortran
    Version 2.3.0 available for testing in MVS batch ... 2567

WAIT time
    on Cray, charge for suspended ... 2528
Waterloo C
    version 3.0 available for testing in CMS ... 2515
Wylbur
    fetch failures ... 2498

X.25
    expanded access ... 2490

Argonne National Laboratory
Computing and Telecommunications Division
October 1988

COMPUTING CENTER SEMINAR

The Computing and Telecommunications Division (CTD) is offering one seminar. There is no charge for attending this seminar. To register, call or visit the CTD Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the seminar and notify attendees of any schedule changes.

UNICOS 4.0--WHAT'S DIFFERENT

Goals:	To learn about the new features and changes in UNICOS 4.0.
Length of Seminar:	One hour
Date and Time:	October 13, 1988 (Thursday), 1:30 p.m. to 2:30 p.m.
Location:	Building 221, Room A-216
Instructor:	Al Hinds

COMPUTER-BASED TRAINING COURSES

CTD currently offers 29 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS Editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers
	IBM CBT Course
SLFTEACH	Introduction and Advanced Concepts of Xedit
	CRWTH CBT Courses
General Data Processing Courses	
DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center
Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CICS Course	
CICSPI	CICS Concepts and Facilities
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
Cobol Course	
COBOL2	VS COBOL II: Making the Transition
Office System Course	
OFFICE	Office System Skills and Concepts
PROFS Courses	
PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
SORTMRG	Using SORT/MERGE Utilities
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Course	
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)
Miscellaneous Courses *(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)*	
ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

Argonne National Laboratory
Computing and Telecommunications Division Rates
October 1, 1988

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. In fulfilling this mission, the Division:

- Performs research and development in advanced scientific computing and telecommunications technologies.
- Performs applications-oriented research in supercomputing, networking, scientific visualization, parallel processing, and other areas of computer science.
- Participates in developing Laboratory initiatives and technology transfer programs in scientific computing.
- Provides leadership in optimizing computing and information services and in disseminating computer-related technologies throughout the Laboratory.
- Coordinates the development of and provides assistance for an integrated hierarchy of computing systems.
  - — Provides leadership in the use of supercomputers and large-scale central computers.
  - — Provides resources, technical guidance, and other assistance in distributed minicomputers, scientific and engineering workstations, and personal computers.
- Manages the Laboratory's central computing production systems.
- Manages the Laboratory's voice and data communications systems.
- Works with Argonne divisions, departments, programs, user groups, and Laboratory management to define needs and priorities.
- Develops plans, prepares recommendations, and implements computing policy for the Computing Policy Committee.

GENERAL INFORMATION

Eligible users. The computing services provided at Argonne National Laboratory are generally available to all members of the Laboratory; DOE and other U.S. Government agencies are served by arrangement. In addition, other not-for-profit organizations may apply for permission to use these computing services. Commercial firms are generally not eligible to use Argonne National Laboratory computing services.

Shift differentials. The week is divided into three shifts. Applicable shift differentials for job charges are based on the time an interactive session starts or a batch job begins execution; and rates are reduced outside prime shift to reflect the lower desirability, lighter load, and reduced operations staffing off prime shift and during holiday periods. The three shifts are defined as follows:

Prime	Monday through Friday, 7:00 a.m. to 7:00 p.m.
Overnight	Monday through Friday, 7:00 p.m. to 7:00 a.m. the following morning.
Weekend	Saturday 7:00 a.m. to Monday 7:00 a.m. and Holidays.

Periods may be preempted for maintenance, housekeeping, and systems time, especially during the overnight and weekend shifts; unavailability is announced when possible the afternoon before scheduled periods of unavailability.

Service premiums and discounts. Some of the charges for batch computing services listed here include service premiums and discounts. During each shift, at least two levels of service are available: (1) an expedited service and (2) a regular service. Users select the level of service they require and indicate their requests by specifying CLASS= on MVS JOB cards or the appropriate batch queue on the **SUBMIT** command in VAX/VMS and UNICOS. We measure service as the delay between the time the job is submitted and the time it begins execution. The computer operating system and computer operators schedule jobs to satisfy users' requests for service. In MVS and VMS, charges may be reduced if the service requested is not provided.

Special arrangement jobs. Special arrangements are necessary to schedule the running of jobs that exceed established scheduling limits for time and/or memory resource allocations or that need special operator attention to schedule for other reasons. Users with these special jobs need to call Users Services. User Services will determine if the jobs can be processed with special arrangements or not. User Services will then arrange with Computer Operations for scheduling approved special jobs.

Surcharge to non-ANL users. Outside users with computer accounts funded by DOE but not by ANL incur a surcharge of approximately 25 percent. The surcharge for DOE-affiliated users outside the Laboratory is analogous to the overhead charge incurred by programmatic divisions for Laboratory general administrative expense. Outside users with computer accounts funded neither by DOE nor by ANL incur a surcharge of approximately 55 percent. Outside computer users not affiliated with DOE incur a nonadditive combination of surcharges for Laboratory general administrative expense, Laboratory general depreciation, depreciation of computing equipment, and DOE administrative expense.

Limited availability. Some of the computing services listed here are available in limited quantities or to only certain users, either for technical or policy reasons. For example, online disk storage and telecommunications ports are limited to available hardware, and MVS TSO enrollment is limited. VM/SP and MVS TSO are generally not available to non-ANL users. Overnight and weekend standby jobs are limited to running when Computing and Telecommunications expects them to have negligible impact on the normal service levels provided. Users should consult with Computing and Telecommunications before making plans or commitments that require specific services or resources.

Refund policy. A computer user is entitled to a refund of charges for resource usage that occurred as a result of hardware failure, system software failure, error on the part of the Computer Operations staff, or similar circumstances beyond the user's control. The refund will not cover the parts of the job that can reasonably be skipped or suppressed in the rerun. Refunds of less than $5 are not processed. Regardless of the cause of the failure, *no more than 15 minutes worth of CPU time will be refunded for a batch job*; users with programs that require more than 15 minutes for computation should save intermediate results at least every 15 minutes for recovery purposes in case of failure. Users are responsible for backing up their own datasets; refunds will not be given for the cost of recreating lost or damaged datasets. Refunds are also not provided for I/O errors on personal tape reels. To apply for a refund, fill out a Computer Refund Request Form (available from the Consulting Office) and send it with adequate supporting evidence to the Consulting Office. Your request will be reviewed; and, if a refund is due, it will be applied to your account.

COMPUTER MANUALS

Users may purchase computer manuals at the Document Distribution Counter in Building 221, Room A-134, or may order manuals by calling extension 2-5405. Please consult *Recommended Documentation for Computer Users at ANL* (ANL/TM 379), for information on our policies, procedures, and recommendations. The charge for computer manuals is based on their direct cost plus an amount for ordering, inventory, and handling costs.

INTERACTIVE SERVICES

OBS Wylbur (IBM 3033). Wylbur is an efficient, easy-to-learn interactive system for editing files and managing MVS batch jobs. It shares access to most disks used by MVS batch jobs; and it submits jobs to, and retrieves output from, the MVS batch system. Users may write and use powerful exec programs in Wylbur to perform frequent or repetitive series of commands, but Wylbur does not execute other programs (such as Fortran or user applications). Wylbur charges are predominated by session time and include very little CPU time for typical user work; the CPU time rates are set to compensate for Wylbur's underreporting of the user's CPU use.

IBM VM/SP CMS (IBM 3033). VM/SP is an efficient, easy-to-learn interactive system for executing programs. It has a file system separate from that used by Wylbur and MVS batch; but it has a link to submit jobs to, and retrieve output from, the batch systems. Many useful applications programs, compilers, and utilities can be used interactively in VM/SP; and batch programs can be developed in VM/SP and then installed for production in MVS batch without change.

IBM MVS TSO (IBM 3033). MVS TSO is intended only for users whose applications require it. TSO consumes more resources than VM/SP or Wylbur with batch for performing comparable tasks; our capacity plan for allocating computing resources requires restricting TSO usage in favor of VM/SP and Wylbur services, because they make more effective use of computer resources. Therefore, MVS TSO enrollment is limited; it is not automatic as with VM/SP, Wylbur, or batch, but is subject to approval by Computing and Telecommunications management. MVS TSO has been installed essentially without local modifications; most applications packages and language processors are not available in MVS TSO, and we do not plan to offer TSO introductory courses and consulting services. Users may apply for MVS TSO authorization by completing a brief MVS TSO enrollment form available from Account Services (Building 221, Room A-147).

IBM CICS/VS (IBM 3033). IBM's Customer Information Control System (CICS) is a general-purpose database and data-communication processing system that provides several of Argonne's administrative computing applications. The Laboratory's Personnel and Payroll Systems, the Medical System, and the Argonne Materials Ordering System (AMOS) are presently using CICS for online inquiry and updating of information contained in their application databases. User access to these CICS application software packages is authorized on an application-by-application basis.

DEC VMS (VAX 8700 and VAX 8250). The Digital Equipment Corporation VMS system is an easy-to-use environment for interactive programming and screen-oriented applications. The VAX 8700 has a range of modern programming tools, scientific libraries, and database systems oriented to (but not limited to) scientific and engineering applications. The VAX 8250 serves as the VAX Supercomputer Gateway to the Cray X-MP, providing Cray interactive access and tools for running Cray batch jobs.

Cray UNICOS (Cray X-MP/14). Cray Research's UNICOS system provides interactive Unix services primarily for those users requiring access to the Cray interactive debugger or doing interactive graphics. Access to interactive UNICOS is through the TCP/IP network, the MVS system, or the VAX Supercomputer Gateway.

BATCH SERVICES

IBM MVS SP (IBM 3033). We offer four classes of MVS batch service that are detailed below. Batch job classes enable users to choose between expedited and regular service; they also permit users to defer execution of batch jobs to shifts with lower rates. Table 1 shows the class of service and shift multipliers that result from the combination of shift differentials and service premiums and discounts selected by the user.

Class U Expedited Batch. Class U provides expedited batch service within a few minutes anytime of day, comparable to response from interactive systems.

Class W Regular Batch. Class W provides regular batch service within a few hours anytime of day. This class is the default.

Class X Deferred Overnight Batch. Class X requests that job execution normally be deferred until the overnight shift. It provides assured overnight service if submitted by 5:00 p.m. Monday through Friday but is not eligible to run during prime shift. At our discretion during the day, we may release Class X jobs.

Class Y Deferred Overnight Batch. Class Y provides lower charges than Class X; batch jobs in this class will normally run overnight or weekends (if time is available), when the jobs will have negligible impact on other jobs. We make no estimates or guarantees about when they will run.

DEC VMS. The Digital Equipment Corporation VMS system batch services are entirely compatible with VMS interactive applications that do not require terminal input. The batch service classes (W, X, and Y) are obtained by submitting jobs to the following queues with the **SUBMIT** command:

VAX 8700 QUEUES[1]

W_BATCH and SHORT_W_BATCH. The W_BATCH queues provide regular batch service within a few hours at any time of day. The SHORT_W_BATCH queue is the default queue if none is specified. The SHORT queue has a maximum time limit of five minutes.

X_BATCH. The X_BATCH queue is for jobs that you wish to defer until the overnight shift. It provides overnight service if submitted by 5:00 p.m. Monday through Friday. At our discretion, we may start X_BATCH queue jobs during the prime shift.

Y_BATCH. The Y_BATCH queue provides lower charges than the X_BATCH queue; batch jobs in this queue will normally run overnight or weekends (if resources are available), when the job will have little impact on other processing. There are no guarantees when Y_BATCH jobs will run.

SPECIAL_X_BATCH. The SPECIAL_X_BATCH queue is for jobs that need resources exceeding norml limits. Make arrangements with Computer Operations to release these jobs. As the name implies, jobs are charged at the same rate as X_BATCH.

VAX 8250 QUEUES

CRAY_SUBMIT_BATCH. The CRAY_SUBMIT_BATCH queue is always available to run jobs that submit work to the Cray X-MP/14 or require resources of the Cray gateway software. This queue is analogous to the W_BATCH queue that executes on the VAX 8700.

Cray UNICOS 3.0. The Cray Research, Inc. UNICOS operating system is derived from the AT&T Unix System V operating system with Berkeley Unix enhancements and includes the Network Queuing System (NQS) for managing batch jobs. The job CPU time estimate is limited to one hour during the day shift and three hours during the other shifts. You may submit batch jobs to one of the UNICOS batch job queues listed below:

Queue u Expedited Batch. Queue u provides expedited batch service within a few minutes anytime of day, comparable to response from interactive systems. Jobs with less than a 30-second time estimate will receive preferential treatment. Jobs over one hour will not normally run during the day.

---

[1] Computing rate is determined by the shift in effect when the job starts.

Queue w Regular Batch. Queue w provides regular batch service within a few hours anytime of day. This class is the default. Jobs with less than a 30-second time estimate will receive preferential treatment. Jobs over one hour will not normally run during the day.

Queue x Deferred Overnight Batch. Queue x requests that job execution normally be deferred until the overnight shift. At our discretion during the day, we may release Queue x jobs.

Queue y Deferred Overnight Batch. Queue y provides lower charges than Queue x; batch jobs in this class will normally run overnight or weekends if and when time is available, and the jobs will have negligible impact on other jobs. We make no estimates or guarantees about when they will run.

Queue special. Queue special is by arrangement with CTD to allow jobs to exceed normal limits.

Central Processing Charging Algorithm

$$SS * [(CPU * R_1) + (STO * R_2) + (I/O * R_3)]$$

Where:

SS = Class of Service/Shift Multiplier (See Table 1)
CPU = CPU Hours Used
STO = CPU Storage Occupancy Megaword Hours Used
I/O = Thousands of Input/Output Requests Issued
R_1 = Central Processor Rate (See Table 2) per CPU hour
R_2 = CPU Storage Occupancy Rate (See Table 2) per megaword hour
R_3 = Input/Output Transfer Charge (See Table 2) per thousand

Table 1: Class of Service and Shift Multipliers

Class	Prime	Overnight	Weekend
Cray X-MP/14 Batch			
u	2.00	1.50	1.50
w	1.00	0.75	0.75
x	0.50	0.50	0.50
y	0.30	0.30	0.30
Cray X-MP/14 Interactive	2.00	1.50	1.50
IBM Batch			
U	2.00	1.50	1.50
W	1.00	0.75	0.75
X	0.50	0.50	0.50
Y	0.30	0.30	0.30
IBM Interactive			
Wylbur	6.00	4.50	4.50
CMS	2.00	1.50	1.50
TSO	3.00	2.25	2.25
CICS	2.00	1.50	1.50
VAX 8700 Interactive	2.00	1.50	1.50
W_BATCH (includes SHORT_W_BATCH)	1.00	0.75	0.75
X_BATCH (includes SPECIAL_X_BATCH)	0.50	0.50	0.50
Y_BATCH	0.30	0.30	0.30
VAX Supercomputer Gateway Interactive	2.00	1.50	1.50
CRAY_SUBMIT_BATCH	1.00	0.75	0.75

Table 2: Central Processing Rates

	R_1 Central Processor	R_2 CPU Storage Occupancy	R_3 Input/Output Transfers
Cray X-MP/14	350.00	100.00	0.32
IBM 3033s	150.00	400.00	0.32
VAX 8700 Cluster	100.00	0.00	0.32
VAX Supercomputer Gateway	20.00	0.00	0.32

PERIPHERAL, JOB, AND NETWORK SERVICES

These charges do not vary by shift and service level.

Resource	*Unit*	*Rate*
IBM/CMS, VAX/VMS, and Cray Interactive Session Time	Hour	$1.00
Batch Job Setup Charge	Job	0.25
Tape Setup	Tape	1.00
Output Printing	Thousand Lines	0.40
Remote Printing[2]	Thousand Lines	0.10
Files transferred as card images[3]	Thousand Cards	0.10
Output Punching	Thousand Cards	3.50
DatagraphiX AutoCOM II[4]	Fiche	1.00

GRAPHICAL OUTPUT

Resource	*Unit*	*Rate*
Per Job Surcharge	Job	$ 0.15
Frames	Frame	0.02
Device Time		
Matrix	Hour	45.00
FR80 35mm and 105mm	Hour	150.00
FR80 16mm Color	Hour	75.00
FR80 16mm Black and White	Hour	150.00
CalComp	Hour	35.00
Materials		
Matrix Color Film	Foot	1.50
Matrix Color Transparency	Foot	6.00
FR80 Color Film	Foot	1.50
FR80 Black and White Film	Foot	0.15
CalComp 5835	Thousand Lines	0.40

DATABASE SERVICES ACCESS CHARGES

Resource	*Unit*	*Rate*
Financial Management System Access (FMS)	Cost Center Month	$ 6.00
Human Resource System Access (HRS)	Cost Center Month	30.00

MISCELLANEOUS SOFTWARE, ACCESS, AND USAGE CHARGES

Resource	*Unit*	*Rate*
IBM Professional Office System Access (PROFS)	User Month	$45.00
Ansys Software Package	User Month	7.50
Ansys Software Package	CPU second	0.20
Computing and Telecommunications Staff Effort	Hour	45.00

---

[2] Includes print image files sent to VM/SP users and microfiche (ANLVM.FICHE virtual machine).

[3] Includes remote punching.

[4] The ANLVM.FICHE dedicated virtual machine produces computer output microfilm.

DIRECT ACCESS STORAGE

Resource	*Unit*	*Rate*
MVS Disks	Megabyte[5] Day	$ 0.20
CMS Virtual Disks (Minidisk)	Megabyte[5] Day	0.20
VMS Permanent Disks	Megabyte[6] Day	0.20
Cray Permanent Disks	Megabyte[7] Day	0.40
CMS Minidisk Restoration from Back-Up Tape	File or Minidisk	30.00
MVS Dataset Restoration from Back-Up Tape	Dataset	30.00
VMS File Restoration from Back-Up Tape	File	30.00
Cray File Restoration from Back-Up Tape	File	30.00

TAPE LIBRARY SERVICES

Resource	*Unit*	*Rate*
Library Tape Storage Slot Rental	Tape Day	$ 0.03
Personal Tape Storage Slot Rental	Tape Day	0.08
Disaster Protection Storage Slot Rental	Tape Day	0.08
Library Tape Initial Assignment Processing	Tape	1.50
Personal Tape Number Assignment and Check-In (Includes Cleaning Tape)	Tape	7.50
Purchase of Tape from Computing and Telecommunications[8]	Tape	35.00
Credit for Return of Tape by User	Tape	18.00
Cleaning and Testing User-Owned Tape	Tape	20.00
Cleaning User-Owned Tape	Tape	3.00
Transfer Tape to Disaster Protection Storage	Tape	3.00

DATA COMMUNICATIONS SERVICES

Resource	*Unit*	*Rate*
ARPAnet Usage	Connect Hour	$35.00
Tymnet Usage	Connect Hour	16.00
ANL/FNAL Microwave Access Charge	User Month	285.00
Asynchronous Ports		
1,200 Bits Per Second Dedicated	Port Month	75.00
2,000 to 4,800 Bits Per Second Dedicated	Port Month	110.00
X.25 Multiplexer Port, 1,200 to 9,600 Bits Per Second	Line Month	200.00
IBM 3277 Local Attachment	Port Month	100.00

---

[5] A megabyte is 2^{20} or 1,048,576 bytes. Currently online direct access storage is provided on the equivalent of IBM 3380 disks. IBM 3380 disks have 47,476 bytes per track, giving a cost of approximately $0.00906 per track day.

[6] A megabyte is 2^{20} or 1,048,576 bytes or 2,048 disk blocks. VMS disk storage is allocated in blocks that are each 512 bytes. The cost of VMS storage is approximately $0.000098 per block day.

[7] A megabyte is 2^{20} or 1,048,576 bytes or 256 disk blocks. UNICOS disk storage is allocated in blocks that are each 4,096 bytes. The cost of UNICOS storage is approximately $0.000781 per block day.

[8] You cannot remove library tapes from the tape library for temporary use elsewhere. Instead, we recommend that you copy the data to a personal tape for removal from the library. You must purchase library tapes that you choose to remove from the library for use elsewhere; Computing and Telecommunications will then reassign your old library tape number to a new tape in the library.

Resource	*Unit*	*Rate*
Binary Synchronous Ports		
1,200 to 9,600 Bits Per Second Dedicated[9]	Port Month	125.00
19.2 Kilobits Per Second Dedicated[9]	Port Month	175.00
50 to 56 Kilobits Per Second	Port Month	250.00
2,000 or 4,800 Bits Per Second Dial Up[10]	Station Month	75.00
Additional Station IDs, Dedicated or Dial Up	Station ID Month	35.00
Laboratory-Wide DECnet	Port Month	100.00
Peer-to-Peer File Transfer Network Connection		
1,200 to 9,600 Bits Per Second[11]	Port Month	350.00
19.2 to 50 Kilobits Per Second[11]	Port Month	450.00
Single User NJE Routing Through Divisional VAX[11]	Station Month	25.00
Multiuser NJE Routing Through Divisional VAX[11]	Station Month	150.00
Single User NJE Routing Through Central VAX[11]	Station Month	25.00
Multiuser NJE Routing Through Central VAX[11]	System Month	200.00
RADS Remote Job Entry Station[9]	Station Month	875.00
Printerms Maintenance	Month	25.00
DECwriter III Maintenance	Month	25.00
Vadic Modem 1,200 Bits Per Second Maintenance	Month	10.00

PRIVATE BRANCH EXCHANGE (PBX) SERVICES

Resource	*Unit*	*Rate*
Basic Station Service (Formerly Pool Charges)	Month	$36.00
Service Order Processing (Physical Move, Add, or Change)	Each	20.00
Dedicated Onsite Circuit Terminations	Month	4.00
Measured Services		
Federal Telecommunications Service (FTS)	Minute	0.50
Local Measured Service (Area Codes 312 and Portions of 815)	Minute	[12]
Long Distance Service (National and International)	Minute	[12]

---

[9] Includes one station ID and one dedicated port.

[10] Includes one station ID.

[11] The Laboratory-Wide DECnet/NJE service is a new service established in FY1989 that extends the previous Peer-to-Peer File Transfer Network Connection services. In addition to the monthly user charge, users will also incur file transfer charges of $0.10 per thousand card images (see "Peripheral, Job, and Network Services" in this rate sheet).

[12] These calls will be rated and billed at approximately 80 percent of AT&T and IBT tariffs with respect to distance, time of day, and length of call.

Resource	*Unit*	*Rate*[13]
Miscellaneous Commercial Communications Vendor Services		
Lemont Main Numbers		
Private Dedicated Lines		
Wire Services		
Cellular Telephone Usage		
Other Offsite Services		
Station Equipment		
Telephone Instruments		
Single-Line Analog Telephone	Month	$ 1.00
ITE 4 Telephone (1 Line, 4 Button)	Month	1.50
ITE 12 Telephone (8 Line, 12 Button)	Month	6.00
ITE 12S Telephone (8 Line, 12 Button, Speakerphone)	Month	10.00
ITE 24 Telephone (18 Line, 24 Button, 40 Character Display)	Month	17.50
Miscellaneous Equipment		
Cellular Telephone Rental ($5.00 per day after 15 days)	Day	10.00
Speakerphone (External)	Month	4.00
Remote Billing Station (Lodging Only)	Month	130.00
Other Miscellaneous Station Equipment	Month	2.00
Digital Data Interface Equipment		
Asynchronous		
ADI 100 Asynchronous Data Interface (300-19.2K bps)	Month	4.00
ADI 101A Rack-Mounted Asynchronous Data Interface (300-19.2K bps)	Month	3.50
ADI 101A Rack Cabinet	Month	8.00
ADI 101A Shelf	Month	5.50
Synchronous		
DIU-2 Synchronous Data Interface w/o Phone	Month	19.00
Ethernet		
DOB-4 for Ethernet Service with ITE 12	Month	19.50
LDI 400/DIU-4 for Ethernet Service without Telephone	Month	25.50
LDI 410/DIU-5 LANmark Ethernet Gateway	Month	38.00
IBM 3270		
DOB-6 for LANmark 3270 with ITE 12	Month	22.00
LDI 700/DIU-6 for LANmark 3270 without Telephone	Month	18.50

---

[13] Commercial communications vendors provide the listed telecommunication services and bill the Computing and Telecommunications Division. Computing and Telecommunications bills the monthly costs of these services to the using organization according to the vendor supplied invoice.

☆ U.S. GOVERNMENT PRINTING OFFICE 1988—542-143/80004

DOC.
E1.86/5:
19/11

ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 19 NUMBER 11 NOVEMBER 1988

COMPUTING COMMENTS

Task Force Recommends Replacing IBM 3033 Computers 2595
Computing and Telecommunications Division Initiates Disk Acquisition 2595
Computing and Telecommunications Division Plans IBM 3480-Type Tape Drive Acquisition 2595
Christmas Through New Year's Holiday and Laboratory Closing Service Schedule 2596

MANAGEMENT INFORMATION SYSTEMS

Integrated Financial System Update 2596
Plans for HRS Replacement 2597

CMS NEWS

Inquire Release 87.1 Available for Testing in CMS 2597

CRAY NEWS

Schedule for Installing New DS-40 Disk Subsystem 2598

GRAPHICS NEWS

SuperImage 1.5 Upgrade Now Available 2598

MVS NEWS

ICEGENER Is a New Alternative for IEBGENER in MVS 2598

VAX/VMS NEWS

Central VAX Cluster Upgrade to VMS 5.0 Deferred 2599
ANSYS Graphs May Now Be Sent to Argonne Plotters 2599
Distributed VAX Printers Available to Argonne NJE Network 2599

BITS & BYTES

Recently Updated and Published Documents 2600
Computing Center Use Statistics Page Revised 2601
Erratum: Charged Prime Shift Batch Usage 2601

BULLETIN

Bulletin of October 3, 1988--Computing and Telecommunications Division Revises Rates and Job Scheduling for FY1989 2601

USERS GROUP HIGHLIGHTS

Minutes of Computer Users Group Meeting Held October 4, 1988 2602
Minutes of Macintosh Users Group Meeting Held October 12, 1988 2604
Minutes of Graphic Arts Users Group Meeting Held October 14, 1988 2605

COMPUTING CENTER STATISTICS

COMPUTING CENTER TELEPHONE NUMBERS AND SERVICE SCHEDULE

SUBJECT INDEX

APPENDIX
Computer-Based Training Courses

OSITORY
DEC 23 1988
UNIVERSIT ILLINOIS
AT U MPAIGN

COMPUTING COMMENTS

TASK FORCE RECOMMENDS REPLACING IBM 3033 COMPUTERS

A Task Force appointed in October 1987 by E. Gale Pewitt (Chief Operations Officer) and headed by David P. Weber (Director of the Computing and Telecommunications Division) has recommended that CTD immediately develop an acquisition plan to upgrade the input/output subsystem of the IBM 3033 computers. The upgrade will provide substantial improvement in response time for the Integrated Financial System (IFS) and other interactive applications by adding disk drives and by increasing the number of paths to the disks.

Further, the Task Force has recommended that CTD develop an acquisition plan for a used replacement machine of suitable capacity and features for installation in FY1989. Due to the significant shift of computing to the Cray X-MP/14 and VAX cluster computers, the Task Force concluded that there was no compelling reason to install the latest computer architecture (such as an IBM 3090 class machine) to run IBM-type applications at the Laboratory in the foreseeable future. The acquisition of a used computer that is one hardware generation behind the most advanced IBM-type computers that are available would provide a prudent mix of capacity, expandability, current architecture, and cost. If the observed price reductions for used machines continue for later generations of machines (such as the IBM 3090 class), the recommended strategy would be to acquire a used but current replacement machine on a regular basis, approximately every three to four years.

The Task Force, which was charged with defining and documenting the current and future technical needs and requirements for IBM-type central computing resources, included representatives from the Applied Physics Division (AP), ANL West (AW), the Computing and Telecommunications Division (CTD), the Materials Science Division (MSD), the Office of Chief Financial Officer (OCF), the Office of the Director/Energy, Environmental and Biological Research Program Administration (OTD/EBA), the Office of the Director/Engineering Research Administration (OTD/ERA), the Physics Division (PHY), the Pulsed Neutron Source (PNS), the Support Services Division/Materials and Services Department (SSD/MS), the Support Services Division/Plant Facilities and Services Department (SSD/PFS), and the Support Services Division/Procurement Department (SSD/PRO). The Task Force was asked to ensure that the needs of IBM-type computer users were thoroughly represented in the planning process, to consider the replacement within the context of the future development of IBM-type computing, and to assess the options and merits of all IBM-compatible systems in the marketplace for the current and future needs of Argonne.

During the investigation, the Task Force considered the major computing workload changes resulting from the installation of the Cray X-MP/14, the installation of the new interactive IFS, and the replacement of the Automated Materials Payables System (AMPS) and the Stock Tracker System currently running on Hewlett-Packard 3000 computers. The Task Force also reviewed ancillary issues (such as the need to acquire two independent computers or to separate administrative and scientific computing). The Task Force used capacity planning software and outside consultants to address the effects of various computing workload changes.

COMPUTING AND TELECOMMUNICATIONS DIVISION INITIATES DISK ACQUISITION

In response to the recommendations of the IBM 3033 Replacement Task Force, the Computing and Telecommunications Division (CTD) is initiating a disk acquisition to reorganize its IBM 3380 disk subsystem. The capacity planning study undertaken by the Task Force determined that the IBM 3380 disk subsystem was affecting the performance of online systems because of the demand for access to the data contained on the disks. To relieve the congestion, the Task Force adopted a strategy that would triple the number of paths to the data. The strategy recommends acquiring two IBM disk controllers and two disk units to subdivide the disk subsystem. The acquisition will benefit interactive response time and batch job throughput. Also, subdividing the disk subsystem will result in an increase in user storage of five gigabytes.

COMPUTING AND TELECOMMUNICATIONS DIVISION PLANS IBM 3480-TYPE TAPE DRIVE ACQUISITION

The Computing and Telecommunications Division (CTD) plans to acquire an IBM 3480-type tape drive system for the Laboratory's central Cray and

IBM computers. IBM 3480-type tape drives offer greater reliability and data transfer rates than existing reel-to-reel tape drives and use the new tape cartridges.

These new tape drives achieve higher data transfer rates of three megabytes per second by increasing the density of the data on the tape to approximately 38,000 bytes per inch (as opposed to 6,250 bytes per inch on the current equipment). However, although the density of the tape has increased substantially, the length of the tape has decreased (resulting in little increase in the capacity of each tape). An IBM 3480-type tape cartridge occupies one half the space occupied by a conventional 2,400 foot tape reel. Users will benefit from the greater data transfer rate that will reduce job elapsed times and the reduction in input/output errors that these devices experience.

The tape cartridge completely encloses the magnetic tape media and is designed to be opened only by an IBM 3480-type tape drive as home videocassettes are designed to be opened only by videotape players and recorders. This enclosure mechanism prevents dust and other contaminants (which cause read-and-write errors) from reaching the tape media. Because of this new cartridge design, users cannot use IBM 3480-type tape cartridges with conventional reel-to-reel tape drives. Users who remove their tape cartridges from the computer center should be aware that only other IBM 3480-type tape drives will be able to process their cartridges.

After their arrival sometime this summer, CTD plans to use the IBM 3480-type tape drives for many of its internal applications (such as backing up disk volumes and storing large sequential databases like the Komand accounting database). Eventually CTD intends to offer the IBM 3480-type tape system to all users as a general tape service and to reduce the availability of conventional reel-to-reel tape drives. The actual timetable for introducing IBM 3480-type tape drives and reducing the amount of reel-to-reel equipment will depend on user acceptance of the new equipment. CTD intends to keep a few reel-to-reel drives for some time. Users who have applications that might benefit from IBM 3480-type tape technology or questions should contact John Volmer at extension 2-5449 or via electronic mail at B32831 @ ANLVM.

CHRISTMAS THROUGH NEW YEAR'S HOLIDAY AND LABORATORY CLOSING SERVICE SCHEDULE

All the computing systems will operate throughout the 11-day period from Friday, December 23, 1988, through Monday, January 2, 1989. At least one computer operator will be available throughout the period (except for Christmas Eve, Christmas Day, New Year's Eve, and New Year's Day, when no operator will be available). Weekend computer rates will prevail throughout the period beginning at 12:01 a.m. on Friday, December 23, 1988, until 7:00 a.m. on Tuesday, January 3, 1989. The two 48-hour unattended periods will be from 12:30 a.m. on Saturday, December 24, 1988, until 12:30 a.m. on Monday, December 26, 1988, and from 12:30 a.m. on Saturday, December 31, 1988, until 12:30 a.m. on Monday, January 2, 1989. During these two periods, all computing systems (UNICOS, MVS batch, Wylbur, CMS, VAX/VMS, and TSO) and the MFEnet gateway will remain operating but will be unattended. No operator will be available to mount tapes, distribute output, handle special requests, or recover systems that fail to operate properly.

Building 221 will be locked when the computers are unattended, but keys will be available at the Northgate Road entrance. Users who have special requirements for service during these periods should call the Computer Operations Manager at extension 2-5437.

MANAGEMENT INFORMATION SYSTEMS

INTEGRATED FINANCIAL SYSTEM UPDATE

Now that the Laboratory has closed its financial books for FY1988, the Integrated Financial System (IFS) Project Team is completing the testing of July 1988 financial data, developing report standards, coding Information Expert versions of the Financial Information System (FIS) and the Financial Management System (FMS) standard reports, and loading the closing balances from FY1988 in preparation for processing October 1988 data.

In October 1988, some Project Team members attended the annual conference of IMAGE (Integrated Management Accounting for Government and Education), which addressed the application of

Management Science America, Incorporated's (MSA's) financial software at government and educational organizations. Online demonstrations, technical sessions, panel discussions, and general sessions about management issues contributed to a wide variety of educational interchange during this multi-product conference. Attendance at IMAGE and at the annual conference of InterAct (a general conference for all industry types) provides the Laboratory with an insight into future development of our financial software and some useful contacts in organizations similar to Argonne. Having the opportunity to voice our opinions on the future direction of the IFS software helps to protect the Laboratory's investment in IFS.

In December 1988, the Project Team will begin training classes so that users can generate their own reports by using the Information Expert reporting tool. We will announce class schedules and locations later. We expect to offer these classes on a regular basis throughout FY1989.

Users can obtain further information about the IFS project from subsequent issues of the *Newsletter* and at the Financial Applications Committee to Effect Telesis (FACET) meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

PLANS FOR HRS REPLACEMENT

The Administrative Data Processing Oversight Committee (ADPO) has approved funds to replace the Laboratory's Human Resource System (HRS) beginning this fiscal year. The project will replace the current HRS System, which is based on the Inquire Database Management System. The new HRS System will use the same software tools and will operate in the same computing environment as the Integrated Financial System (IFS). This common environment eliminates the need for users to be familiar with multiple operating systems and query languages when accessing financial and personnel data. Users will also be able to combine financial and personnel data in a single report.

The Laboratory will implement the new system in two phases. The first phase (scheduled for completion this fiscal year) will provide online access for both inquiry and update of employee records to authorized Laboratory staff. The new system will have the same level of security as HRS to protect the sensitive information contained in the system's databases. Phase two (scheduled for completion early in FY1990) will make available a reporting capability by using the Information Expert product that is also used with IFS.

CMS NEWS

INQUIRE RELEASE 87.1 AVAILABLE FOR TESTING IN CMS

Inquire Release 87.1 is available for user testing on the INQUIRE 2 minidisk. This release of the Inquire Database Management System incorporates approximately four years of enhancements and new features.

Inquire menus on IBM 3270 full screen terminals are now more useful. You can select from them by using the PF keys, the cursor and ENTER key, or the name of the function. Enhancements to database definition and creation include automatic calculation of disk space. The help capability is now PF key and menu driven as in other parts of the online environment. Three variations of Wildcard searching are possible in User Language keyword specifications. Users can invoke the Statistical Analysis System (SAS) within the User Language. Users can generate pie and bar charts, field-by-field plots, and SAS datasets from an Inquire database through the Inquire SAS Macro System.

The Computing and Telecommunications Division (CTD) encourages Inquire developers to test Inquire 87.1 as soon as possible because of compatibility issues.

The latest *User Language Reference* and *Inquire Primer* will be available soon. *SAS Technical Note,* which describes the SAS feature of the Inquire User Language, is available now at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

To use Inquire Release 87.1, enter:

```
CP LINK INQUIRE 2 vaddr
ACCESS vaddr filemode
INQUIRE
```

where "vaddr" is any unassigned virtual address and "filemode" is any unassigned filemode letter occurring alphabetically before any filemode letter associated with the INQUIRE 1 minidisk in your virtual machine.

CRAY NEWS

SCHEDULE FOR INSTALLING NEW DS-40 DISK SUBSYSTEM

The Computing and Telecommunications Division (CTD) will acquire a DS-40 disk subsystem to provide a six-fold increase in available user disk space on the Cray X-MP. The additional disk space will reduce the dependency on the front-end system for staging datasets and will permit CTD to review its disk storage charges and policies for files stored on Cray disks.

The Cray DS-40 disk subsystem will arrive on Monday, October 31, 1988. During that week, the Cray customer engineers will install the equipment and perform the initial standalone testing of the equipment. The Cray customer engineers will complete the testing of the equipment on November 5 and 6, 1988, when they attach the DS-40 disk subsystem to the Cray X-MP/14.

The 20.8 gigabyte storage capacity DS-40 disk subsystem will replace the four existing Cray DD-49 disk storage units on the Cray X-MP. CTD will begin moving the data from the DD-49 disk units to the DS-40 disk subsystem on Monday, November 7, 1988. During this cutover period, the DD-49 disk units will be available for backup should difficulties develop with the DS-40 disk subsystem. CTD will remove the DD-49 disk units from the Cray X-MP and return them to Cray Research, Inc. after the DS-40 disk subsystem passes the acceptance test, which should occur in early December 1988.

GRAPHICS NEWS

SUPERIMAGE 1.5 UPGRADE NOW AVAILABLE

SuperImage, the Computing and Telecommunications Division (CTD) recommended IBM Personal Computer graphics software (see "SuperImage: Recommended Personal Computer Graphics Software" in the January 1988 *Newsletter),* is now available as Version 1.5. This new version offers many new enhancements (including faster drawing times, fewer keystrokes, easy rewording of text, free-hand drawing, modification of lines, drop shadows, the ability to move objects off screen, a new step-and-repeat function for multiple images, and a new PostScript device driver that allows you to create Adobe PostScript files or output directly to a PostScript printer attached to your personal computer).

To upgrade your current SuperImage 1.0 copy, complete and submit to Procurement a "Computing Workstation, Equipment, Software, and Peripherals Acquisition Justification" form (ANL-489) and a "Purchase Requisition" form (ANL-451) indicating the serial number (#6177-nnnn) of your current copy. The product comes shipped on both 5.25-inch floppy disk and 3.5-inch disk formats. The upgrade cost is $20. CTD has acquired a limited number of SuperImage/SuperChart combination packages ($400). If you are interested in obtaining a new copy, contact the User Services consultant at extension 2-5405. SuperImage 1.5 is available on the IBM Personal Computer Model 50 in the Workstation Evaluation and Demonstration Room (Building 221, Room A-142) for users wishing to try this new software.

MVS NEWS

ICEGENER IS A NEW ALTERNATIVE FOR IEBGENER IN MVS

The Computing and Telecommunications Division (CTD) recently installed Version 1.10.0 of the IBM DFSORT utility. ICEGENER, a functional equivalent to the IBM utility IEBGENER, is part of DFSORT. ICEGENER uses the same DD cards as IEBGENER (that is, SYSPRINT, SYSIN, SYSUT1, and SYSUT2). If ICEGENER is unable to process the copy request, it will automatically invoke IEBGENER. You may invoke ICEGENER by changing IEBGENER to ICEGENER in your job control language (JCL) by entering:

```
//stepname EXEC PGM=ICEGENER
```

In some cases ICEGENER executes faster than IEBGENER, although CTD has not done any timing studies. The major benefit of ICEGENER is the addition of informative messages that appear on the SYSPRINT listing. IEBGENER produces terse informational messages:

```
DATA SET UTILITY - GENERATE
PROCESSING ENDED AT EOD
```

ICEGENER produces much more detailed output:

```
ICE143I 0 BLOCKSET     COPY  TECHNIQUE SELECTED
ICE000I 0 --- CONTROL
STATEMENTS/MESSAGES ---- 5740-SM1 REL 10.0 ----
                         ---- 08.53.59 OCT 06, 1988 --
          OPTION COPY,MSGDDN=SYSPRINT,SORTIN=SYSUT1,SORTOUT=SYSUT2
ICE088I 0 TSTGENER.ICEGENER, INPUT LRECL = 80, BLKSIZE = 6320,
                             TYPE = F
ICE093I 0 MAIN STORAGE = (MAX,524288,524288), NMAX = 0
ICE084I 0 EXCP ACCESS METHOD USED FOR SYSUT2
ICE084I 0 EXCP ACCESS METHOD USED FOR SYSUT1
ICE055I 0 INSERT 0, DELETE 0
ICE054I 0 RECORDS - IN: 47, OUT: 47
ICE052I 0 END OF DFSORT
```

ICEGENER messages describe the characteristics of the input (SYSUT1) dataset and the record counts of the input and output (SYSUT2).

VAX/VMS NEWS

CENTRAL VAX CLUSTER UPGRADE TO VMS 5.0 DEFERRED

The Computing and Telecommunications Division (CTD) is deferring the upgrade of the operating system of the central VAX cluster from VMS Version 4 Release 7 (VMS 4.7) to VMS Version 5. CTD had been planning the upgrade for the end of October 1988. The earliest that the upgrade will occur is February 1, 1989.

This deferral accommodates an unexpected requirement to run an alternate version of the Ingres relational database system. VMS Version 4 is necessary to run a beta test copy of the Ingres Relational Database System, Version 6. The Energy and Environmental Sciences Division Office of Advanced Computer Applications (who is using Ingres for a large database modeling application) requested this deferral.

ANSYS GRAPHS MAY NOW BE SENT TO ARGONNE PLOTTERS

VAX 8700 ANSYS users may now send their graphics files (FILE33.DAT) to graphic output devices in the Argonne file transfer network. The Computing and Telecommunications Division (CTD) has implemented the interface between ANSYS and the Argonne graphics system that permits routing of graphics to all central plotters.

The ANSYS set-up procedure now defines the PLOT33 command symbol that converts a FILE33.DAT file to the POPFIL.DAT graphics metafile, which is compatible with the Argonne graphics system. If you have a FILE33.DAT file in your default directory and have executed the **`SETUP ANSYS`** command, enter:

```
$ PLOT33
```

After the PLOT33 program completes, you will find a new copy of the file POPFIL.DAT in your default directory. To send this file to a graphics output device, enter

```
$ HARDCOPY POPFIL.DAT
```

and respond to the prompts with the requested information.

For more information about the **`HARDCOPY`** command and its batch and interactive options, enter:

```
HELP HARDCOPY
```

DISTRIBUTED VAX PRINTERS AVAILABLE TO ARGONNE NJE NETWORK

The Computing and Telecommunications Division (CTD) has enhanced the Argonne Network Job Entry (NJE) emulator software for VAX computers. The new Release 5 Argonne NJE emulator eliminates the limitation of a single printer for each VAX NJE node. The new emulator permits network access to any printer with a VMS print queue on a VAX with NJE networking services (including printers attached directly to the VAX or attached to Ethernet terminal servers).

Users with divisional VAXes should encourage their system manager to define available VAX printers by defining the printer name and print queue name (or logical name) to the NJE emulator.

Users will then be able to send output to those printers from central services (such as Cray UNICOS, the VAX cluster, CMS, MVS batch, and Wylbur).

Cray UNICOS users can send print files by entering:

```
dispose -mOS printfile \
-t"dest=(nodename,printername),sysout=a"
```

VAX/VMS users enter:

```
SEND PRINT filespec nodename printername
```

CMS users enter:

```
OSPRINT fn ft fm nodename printername
```

Wylbur users enter:

```
LIST OFFLINE DEST=nodename.printername
```

MVS batch users may include the following statement:

```
//*FORMAT PR,DDNAME=,DEST=nodename.printername
```

where "nodename" identifies a computer system in the NJE network and "printername" identifies a printer on that system.

BITS & BYTES

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

Computing Services periodically publishes manuals to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing Services Documents

Recommended Documentation for Computer Users at ANL (ANL/TM 379, Revision 1) lists all documents stocked at the Document Distribution Counter and helps Argonne computer users select documentation that will best fit their individual needs. We have revised this document extensively to reflect recent upgrades and other changes in services. Chapter 1 explains how to use this document to select manuals and to obtain them from the Computing and Telecommunications Division Document Distribution Counter. Chapter 2 provides a rationale for the categories in which the publications are listed in Chapter 3. Chapter 3 contains lists of publications organized by topic, with annotations indicating the skill level. Chapter 4 contains an abstract for each publication, all arranged alphabetically. Chapter 5 describes additional publications containing bibliographies and master indexes that the user may find useful. This document supersedes the July 1986 edition.

IBM Documents

The *VS Fortran Version 2 Programming Guide* (SC26-4222-3) explains how to compile and run programs by using VS Fortran Version 2. It also contains information on advanced coding topics. For application programming, you will need to use both this book and the *VS Fortran Version 2 Language and Library Reference*. The *Guide* assumes that the reader has some basic Fortran knowledge. This document supersedes the *VS Fortran Programming Guide* (SC26-4118).

The *VS Fortran Version 2 Language and Library Reference* (SC26-4221-3) contains reference information on VS Fortran Version 2. Part I, "Language Reference," discusses VS Fortran language, data, expressions, statements, and intrinsic functions. Part II, "Library Reference," discusses mathematical, character, and bit routines; service subroutines; data-in-virtual subroutines; extended error-handling subroutines; and multitasking facility subroutines. For application programming, you will need to use both this book and the *VS Fortran Version 2 Programming Guide*. The *Guide* assumes that the reader has some basic Fortran knowledge. This document supersedes the *VS Fortran Language and Library Reference* (SC26-4119).

Other Vendor Documents

Speakeasy Manual Highlights of Epsilon describes Speakeasy IV Epsilon. Speakeasy IV Epsilon is an enhanced version of the 1985 Delta release of Speakeasy IV. This *Manual* includes changes and new features in Speakeasy IV Delta and Speakeasy IV Delta+ and supplements the *Speakeasy IV Reference Manual*.

The *BMDP User's Digest* (1987 edition) is a 9-inch by 4-inch, easy-to-carry, condensed version of *BMDP Biomedical Computer Programs*. The *Digest* covers the control language and efficient methods of using the available program options. The *Digest* gives short examples for each instruction (parameter) with a short explanation and manual reference. This revised edition applies to the 1987 release of BMDP programs and includes new programs; new options for input, transformation, and data management; and new features of existing programs. This edition supersedes the 1979 printing.

The *IMSL Libraries Edition 10.0 Update Guide* (No. 8709) highlights information that will be useful during the transition to the new Edition 10.0 libraries. The new libraries are organized into three categories: general applied mathematics, statistics, and special functions. The first part of this report describes the general features of the new libraries. Next is a discussion of the specific additions and enhancements to each chapter in the new Edition 10.0 libraries, with specific references to the earlier editions. The third part explains the library interface utilities (a set of programs that you may use while converting your programs to the new libraries). Tables at the back of the report list all of the old and new routine names with additional information.

COMPUTING CENTER USE STATISTICS PAGE REVISED

Beginning with this *Newsletter*, the Computing and Telecommunications Division (CTD) has replaced the Computing Center Use in Dollars by Cost Center page of the *Newsletter* with the same information in a different format organized by the Associate Laboratory Director (ALD) organizations. This first chart lists the total cumulative usage for FY1988. Future charts will list either monthly or year-to-date charges, depending upon the response we get from the users to this new format. We plan to publish this format in all future issues of the *Newsletter*. The major services (for example, IBM, VAX, and Cray) reflect disk charges. The column identified as "Other" reflects peripheral charges. The IBM column now reflects Batch, Wylbur, CMS, and MVS TSO charges.

ERRATUM: CHARGED PRIME SHIFT BATCH USAGE

We are reprinting the figure that appeared in "Secondary MVS/JES3 Processor S33B Being Removed" in the October 1988 *Newsletter*, because the title was incorrect (see Figure 1). The figure did not include no cost (N/C) accounts. This chart compares August 1987 and August 1988 S33A and S33B batch CPU usage. The chart shows that sufficient batch CPU has migrated to permit placing the S33B batch load on the S33A processor.

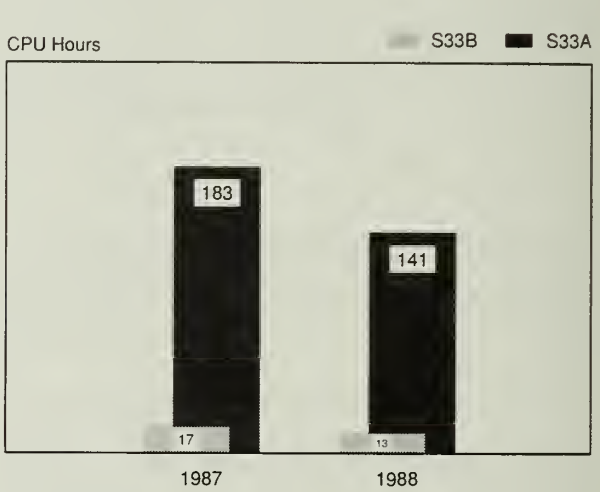


Figure 1: Charged Prime Shift Batch CPU Usage S33A and S33B (August 1987 Versus August 1988)

BULLETIN

BULLETIN OF OCTOBER 3, 1988

COMPUTING AND TELECOMMUNICATIONS DIVISION REVISES RATES AND JOB SCHEDULING FOR FY1989

Effective Tuesday, October 4, 1988, the Computing and Telecommunications Division will revise job scheduling for Cray UNICOS and VAX 8700 batch services. Job scheduling for the IBM MVS batch processor will remain unchanged. These changes are a response to user feedback in preparation for the new rate structure for FY1989.

The previous NQS shift-based batch queues in UNICOS (i.e., day, night, weekend, and standby) are being replaced by priority-based batch queues (i.e., U, W, X, and Y). Jobs that require no more than one hour of CPU time will be eligible to run anytime. However, when there is a backlog of higher priority U and W jobs, operators will stop running lower priority X and Y jobs during the prime shift. Jobs needing more than one hour of CPU time will be deferred to run off prime shift.

Batch job scheduling for the central VAX 8700 computer will now permit priority scheduling off prime shift. Since interactive service will be favored during prime shift, only SHORT_W_BATCH and W_BATCH queues will be available. Jobs in all queues will be eligible to run during the night and weekend shifts. However, the system will schedule higher priority jobs first. There is no longer an equivalent of the STANDBY_BATCH queue.

For the time being, Cray and VAX 8700 users will be able to submit jobs as before. During a brief transition period, both the old and revised queue names will work. However, users should begin using the new queue names.

The old and new batch queue names for the Cray X-MP/14 and VAX 8700 are listed in the table below.

For information on the proposed CPU rates, type HELP RATES in CMS or Wylbur or on the VAX cluster. The proposed rates for FY1989 will be distributed with the October issue of the *Argonne Computing Newsletter*. Although the rates are still being reviewed for approval, the Chief Financial Officer has instructed CTD to begin using the proposed rates.

Cray NQS		VAX 8700	
New	*Old*	*New*	*Old*
u	-	SHORT_W_BATCH	SHORT_DAY_BATCH
w	day	W_BATCH	DAY_BATCH
x	night	X_BATCH	NIGHT_BATCH
y	weekend	Y_BATCH	WEEKEND_BATCH
-	standby	---	STANDBY_BATCH
		SPECIAL_X_BATCH	SPECIAL_ARRANGEMENT_BATCH

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD OCTOBER 4, 1988

The chairman, Dotti Bingaman (Energy and Environmental Systems) opened the meeting at 3:04 p.m.

Network Queuing System Batch Job Scheduling Changes. Doug Engert (Computing and Telecommunications) discussed plans for job scheduling on the Cray X-MP for the new fiscal year. During September 1988, the Cray was at capacity because users were using the computers with the money they had left at the end of September 1988. One of the new scheduling setups is to attempt to avoid this type of year-end rush next September. The goals of the new scheduling are to recover costs, to have the users get the service they pay for, to give the users more control over scheduling their own jobs, to provide incentives, and to provide for incremental changes.

There will be four priority classes: u (at 2 times the nominal cost), w (at the nominal cost), x (at 0.5 times the nominal cost), and y (at 0.3 times the nominal cost). During off-prime hours, the u and w cost multipliers will become 1.5 and 0.75, respectively, while classes x and y remain the same as prime. There will be no special weekend rate that is different from the night rate. In addition to these priority classes, scheduling will depend on the time limit: (1) less than or equal to 30 seconds, (2) 1 hour, and (3) 3 hours. Classes u1, u2, w1, and w2 will normally run at all times. Depending on the system load, classes u3, w3, x3, and y3 may or may not run. The y classes will run at night and weekends. In all cases, if a higher priority job enters the system, it will run ahead of the lower priority jobs.

Currently, you can only query the status of the job queues from the VAX 8700. The Computing and Telecommunications Division (CTD) is looking into the possibility of providing a similar capability through Wylbur.

The current day, night, and weekend designations will remain in effect for October 1988, mapped onto the new classes. The Standby class will result in a job control language (JCL) error. Users must enter all job classes in lowercase letters.

UNICOS 4.0. Al Hinds (Computing and Telecommunications) continued his presentation on the differences in UNICOS 4.0, which are discussed in "Changes Required by UNICOS 4.0" in the October *Newsletter*. A user test will take place on Monday, October 17, 1988, for one day, with production beginning on Monday, October 24, 1988, if no significant difficulties occur. (Since this meeting, CTD rescheduled the user test to Tuesday, October 18, 1988.)

In general, UNICOS 4.0 does not supply sensible defaults for NQS resources, but looks for maximum device or file size parameters. It was requested that the users set these parameters to the values they actually need, since supplying the maximums could actually delay the start of their job if it must wait for the devices to become free.

UNICOS 4.0 brings better tape handling and usage, especially from Fortran programs. Several new performance monitors are available (prof and hpm) to aid in the coding evaluation.

Requirements for Computer Security and Privacy Act of 1987. Jean Troyer (Computing and Telecommunications) discussed actions that must be taken because of new legislation. Three related efforts are necessary: (1) to identify sensitive systems, (2) to establish education and awareness programs, and (3) to supply protection plan information to the National Institute of Standards and Technology (NIST).

Questionnaires that identify sensitive applications have been in use since 1984. The security representatives update these questionnaires yearly and have been asked to identify Privacy Act information as sensitive. We will formalize and expand existing computer protection education and awareness activities.

To provide the necessary documentation to NIST, CTD is developing four protection plan summaries to cover all sensitive systems. Which plan will be selected for a particular system will depend on the number of users and whether the data is an original or a copy. The four plans will cover (1) single-user systems (may be networked) containing only copies of sensitive data, (2) multi-user systems with copies of sensitive data, (3) single-user systems with original sensitive data, and (4) multi-user systems with original data. The security controls will include management, development, operation, and awareness. CTD will produce summaries for all four types of system protection plans. All owners of sensitive computer systems must designate which summary best describes their system. Then they must ensure their complete protection plan is on file and contains the controls indicated by the summary.

Hydra Issues. Forrest Salter (Computing and Telecommunications) discussed several issues about Hydra and the Private Branch Exchange (PBX), which has now been in place a year. There is trouble when users fail to disconnect from the Hydra after finishing their session. When the Systems Network Architecture (SNA) banner appears, the Hydra port is not yet disconnected. A long break or a "##" on your Integrated Telephone Equipment (ITE) is necessary to free the port. CTD is looking into the feasibility of having the Hydra disconnect after a period of inactivity.

Should users experience difficulties getting onto any of the systems, they should let the User Services consultant (extension 2-5405) know. A new IBM 3745 controller would permit the possibility of adding additional X.25 ports. Currently, there are 51 LANmark-connected devices onsite that use the Laboratory-wide Ethernet. LANmark device model numbers have changed.

Currently, an assessment is underway to determine the need for 300 bits per second (bps) and Vadic 1200 baud modems. Also being studied is an upgrade to the Multi-Tech modems to Microcom Network Protocol (MNP) 5. New modems that provide data compression and error control are being delivered with MNP Level 5.

One user expressed concern about the lack of security of the Customer Information Control System (CICS). CTD has notified IBM of this difficulty and is waiting for a response.

Computing Policy Committee Meeting Report. Dotti Bingaman (Energy and Environmental Systems) reported on the Computing Policy Committee meeting held on September 18, 1988. The entire meeting was dedicated to a discussion of computing center rates. Dave Weber (Computing and Telecommunications) and Mike Boxberger (Computing and Telecommunications) stated that the concerns and ideas presented at the September 6, 1988, Computer Users Group meeting were incorporated into the proposed rate structure. The

Computing Policy Committee endorsed the approach taken, especially the method of allocating joint costs based on Full Time Equivalents (FTEs) instead of total operating costs. The Computing Policy Committee also endorsed the elimination of the Standby class of the Cray batch service.

The meeting adjourned at 4:17 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD OCTOBER 12, 1988

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m.

Rodney East (Materials Science) described and demonstrated a new mathematics program for the Apple Macintosh called Mathematica (from Wolfram Research). His demonstration was brief. Because this program is new, he has not had much experience with it. Some of the program features are (1) 3-dimensional graphics that one can rotate, (2) the ability to solve equations symbolically or numerically, (3) the ability to specify the digits to be used for a variable up to 1,000 digits, (4) polynomial expansion of algebraic equations, (5) virtually unlimited symbolic and numeric integration, and (6) the ability to plot a function over a specified range. Potential troubles are (1) the program requires four megabytes of random-access memory (RAM) to work on the Apple Macintosh II, (2) superscripts and subscripts on solved equations are very far from the main line of the equation, (3) the program quitting unexpectedly, and (4) one must learn special case-sensitive commands to use the program. Overall, Rodney thought the program was good for the things it does. Rodney used one 3-dimensional color plot to test the color printer discussed next with good results.

Scott Stanton (QMS, Inc.) demonstrated the new color printer from QMS called QMS ColorScript 100. The printer can handle 16 million colors by using a thermal transfer process that mixes four wax colors: cyan, magenta, yellow, and black. Color mixing is done by a special half-tone algorithm. The machine has a resolution equivalent to current laser printers (that is, 300 dots per inch). As the printer handles only color PostScript, one cannot use it with programs that give color QuickDraw output, such as MacDraw II. The next version of the printer driver from Apple Computer is supposed to convert color QuickDraw output to color PostScript output. Then such programs as MacDraw II will be able to use the QMS ColorScript 100 printer. Apple Macintosh programs currently able to work with the printer include Adobe Illustrator, Aldus FreeHand, Quark XPress, SuperMac PixelPaint, LaserPaint Color II, and Mathematica. The printer connects to the Apple Macintosh through the LocalTalk (formerly AppleTalk) network just like the Apple LaserWriter (including the use of Chooser to select the device). While the printer works best with very smooth paper, one can use it with typical Xerox paper and output it directly to transparencies.

Initial demonstration of the color printing with the QMS ColorScript 100 was hampered because ten copies of a black-and-white document were accidentally sent to the printer and could not be stopped. After that, nice color output was obtained from the printer by using the Mathematica program. It took about two minutes for the printer to process a one-page image and then one minute to print each copy. The ANL price for this machine is about $18,500. The wax film used to make a full color impression costs about 50¢ per copy. Lee Wagar (Graphic Arts) has indicated that Graphic Arts is interested in such a color printer, and they will be doing further evaluation of this printer.

Duane Maas (Apple Computer) will no longer be the Apple technical representative for Argonne National Laboratory. The price increases for the various Apple Macintosh computers were discussed. Although most prices have increased, the price for the Apple Macintosh Plus has not increased. System 6.01 for the Apple Macintosh is now out, but it has a major bug and people were advised to wait for System 6.02 (which should be out in November 1988). Rodney East (Materials Science) is involved in the publication of a HyperCard magazine called *Stackazine*. Contact him if you are interested in more details.

The Programmer's Special Interest Group normally meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. Call John Mattson (Materials Science) at extension 2-5535 for details.

The Excel Special Interest Group normally meets the fourth Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. At the October 1988 meeting, David Chaiko (Chemical Technology) will demonstrate the use of function macros for iterative calculations. There will be no meeting in November 1988 or December 1988. At the January 1989 meeting, the use of Excel for a major chemical-processing model will be discussed. Call Ralph Leonard (Chemical Technology) at extension 2-3229 for details.

The November 1988 meeting will be on Wednesday, November 9, 1988. Plans are still tentative. We hope to get Wolfram Research to give us a full demonstration of Mathematica's capabilities. Other meeting ideas were (1) Data Desk Professional from Odessa, (2) experience with backup options for the Apple Macintosh, (3) a review of the Next computer, and (4) Laboratory-wide connection of Apple Macintoshes and VAX/Macintosh connectivity (including the use of the Kinetics box).

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:13 p.m.

Ralph Leonard, Macintosh Users Group Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD OCTOBER 14, 1988

Chairperson Bryan Schmidt (Energy and Environmental Systems) opened the meeting at 12:15 p.m.

The first item discussed was the need for a site-wide composition system. Graphic Arts personnel spoke to Compugraphics about support for Texet and were not impressed. Compugraphics would have to supply new software. An alternative solution is to switch to an Apple Macintosh-based system. Presently, work is being done on Apple Macintoshes with good results. The question is whether it will be adaptable to future needs, such as using the Standard Generalized Markup Language (SGML) and electronic storage and distribution of documents. (SGML is part of the Computer-Aided Acquisition Logistics and Support [CALS] standard, which the Department of Defense is enforcing.) Soon there may be an SGML parser for the Apple Macintosh.

There was also some question about merging text and graphics created on disparate systems. An example of this type of situation occurred recently in the production of the 1988 Intense Pulsed Neutron Source (IPNS) Annual Report. ASCII files were transferred from Mass-11 to the mainframe to an Apple Macintosh by using Pagemaker. The art for this report was done directly on the Apple Macintosh or stripped in.

The decision needs to be made soon: Try to resuscitate Texet, or abandon it in favor of the Apple Macintosh? A poll of those present suggested that the latter choice is more realistic.

The next item on the agenda was a demonstration of Videoshow presented by a representative of Matrices, Inc. A Videoshow user can create a graphic presentation on an IBM Personal Computer disk and play it back on a TV projector or monitor. Up to 5,000 colors and many special effects are available. Also, a user can make hard copies or slides. A user can insert color photographs (up to 100,000 colors) by using a video camera or scanner. A 90 percent compression feature allows several digitized photographs to fit on a single diskette.

Rich Nixon (Graphic Arts) would like feedback on the following: Would customers have any use for Videoshow if Graphic Arts acquired it? Call Rich at extension 2-5600 with your comments.

Joe Paulini (Graphic Arts) needs the services of a proofreader for about three weeks, starting about October 24, 1988. Call Joe at extension 2-8162 if you know of anyone who is interested.

There was an excellent response to the recent advertisement that Graphic Arts submitted to the *Chicago Tribune* for freelance production people.

Graphic Arts is considering hiring a technical editor. Issues related to the way that position will function should be discussed at a future meeting.

The next Graphic Arts Users Group meeting will be held on Friday, November 11, 1988, at noon in Building 201, Room 274.

Liz Stefanski, Acting Graphic Arts Users Group Secretary

WORKLOAD STATISTICS (AUGUST 31 THROUGH SEPTEMBER 30, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	*END OF MONTH*	*ACTIVE DURING MONTH*
CMS	1,345	1,348	547
Wylbur	1,616	1,616	493
MVS TSO	54	54	4
CICS	1,616	1,616	1
MVS Batch	2,024	2,023	740
VAX/VMS	361	367	173
Cray	277	300	116
All Systems	2,024	2,023	1,014

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				*SESSION*	*CPU*
	PRIME	*NIGHT*	*WEEKEND*	*TOTAL*	*TIME (HRS)*	*TIME (HRS)*
INTERACTIVE						
CMS	13,258	2,375	1,563	17,196	34,065.2	103.67
Wylbur	10,682	554	619	11,855	10,312.7	12.08
MVS TSO	14	1	0	15	16.4	0.00
CICS	25	0	1	26	0.0	0.87
VAX/VMS	9,309	611	511	10,431	9,262.6	42.56
Cray	1,221	158	157	1,536	812.9	6.90
IBM BATCH						
Class U	10,109	2,183	1,407	13,699	n.a.	44.98
Class W	19,243	2,246	1,654	23,143	n.a.	207.85
Class X	3	1,211	83	1,297	n.a.	77.44
Class Y	1	2	351	354	n.a.	23.96
Class Z	0	1	103	104	n.a.	45.51
Nonmain	13,163	1,463	960	15,586	n.a.	0.00
Total	42,519	7,106	4,558	54,183	n.a.	399.74
CRAY BATCH						
Prime	5,326	857	738	6,921	n.a.	455.42
Night	25	337	99	461	n.a.	116.02
Weekend	1	0	109	110	n.a.	19.65
Standby	0	0	0	0	n.a.	0.00
Total	5,352	1,194	946	7,492	n.a.	591.09
VMS BATCH						
Prime	2,274	448	183	2,905	n.a.	195.86
Night	3	103	5	111	n.a.	9.34
Weekend	2	1	127	130	n.a.	4.74
Standby	0	0	0	0	n.a.	0.00
Total	2,279	552	315	3,146	n.a.	209.94

INPUT/OUTPUT

Lines Printed	
Local	68,044,270
Remote	47,246,724
Fiche	38,237,631
Cards Punched-Local Only	26,801
Tape Mounts	10,741
Microfiche Developed	4,535
Microfiche Frames Developed	831,268

GRAPHICS

	# OF JOBS	*# OF FRAMES*
CalComp Jobs	121	n.a.
Matrix 35mm Color	286	921
Matrix-8 x 10	5	5
Matrix-Negative	0	0
FR80 Film Plots		
35mm Black/White/Unsprocketed	0	0
35mm Black/White/Sprocketed	5	44
35mm Color	2	15
16mm Black/White/Sprocketed	7	12,309
16mm Color	8	701

DATA MANAGEMENT

Tapes Stored	22,464
New Tapes Saved	1,154
Tapes Released	1,322
Datasets Exported to Tape	1,861
Datasets Imported from Tape	431

* n.a. = not applicable

MVS BATCH SCHEDULING PERFORMANCE FROM AUGUST 31 AT 7:00 A.M. TO SEPTEMBER 30, 1988, AT 7:00 A.M.

	STARTED IN PRIME SHIFT	STARTED IN OVERNIGHT SHIFT	STARTED IN WEEKEND SHIFT	TOTAL OF ALL SHIFTS
CLASS U EXPEDITED BATCH				
Number Started	10,109	2,183	1,407	13,699
Number Started in 12 Minutes	9,657	1,604	1,217	12,478
Percent Started in 12 Minutes	95.5	73.5	86.5	91.1
25th Percentile Start Delay (Minutes)	0.1	0.1	0.1	0.1
50th Percentile Start Delay (Minutes)	0.1	0.2	0.1	0.1
75th Percentile Start Delay (Minutes)	0.2	13.6	1.2	0.3
90th Percentile Start Delay (Minutes)	2.1	39.1	20.4	9.3
99th Percentile Start Delay (Minutes)	75.1	228.0	84.2	94.3
CLASS W REGULAR BATCH				
Number Started	19,243	2,246	1,654	23,143
Number Started in 2 Hours	18,806	1,995	1,602	22,403
Percent Started in 2 Hours	97.7	88.8	96.9	96.8
25th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	0.0	0.0	0.0
75th Percentile Start Delay (Hours)	0.0	0.1	0.0	0.0
90th Percentile Start Delay (Hours)	0.1	2.6	0.2	0.2
99th Percentile Start Delay (Hours)	3.9	15.2	13.3	5.4
CLASS X DEFERRED OVERNIGHT BATCH				
Number Started	3	1,211	83	1,297
Number Started in 15 Hours	3	1,208	83	1,294
Percent Started in 15 Hours	100.0	99.8	100.0	99.8
25th Percentile Start Delay (Hours)	3.1	2.6	0.0	2.4
50th Percentile Start Delay (Hours)	3.7	4.3	0.0	4.0
75th Percentile Start Delay (Hours)	9.7	8.0	0.2	7.7
90th Percentile Start Delay (Hours)	9.7	9.9	13.5	10.0
99th Percentile Start Delay (Hours)	9.7	10.9	13.8	13.4
CLASS Y DEFERRED WEEKEND BATCH				
Number Started	1	2	351	354
25th Percentile Start Delay (Hours)	0.0	20.5	0.0	0.0
50th Percentile Start Delay (Hours)	0.0	31.4	0.1	0.1
75th Percentile Start Delay (Hours)	0.0	42.3	15.4	15.4
90th Percentile Start Delay (Hours)	0.0	42.3	20.4	20.5
99th Percentile Start Delay (Hours)	0.0	42.3	66.2	66.2
CLASS Z LIMITED DEFERRED WEEKEND BATCH				
Number Started	0	1	103	104
25th Percentile Start Delay (Hours)	0.0	20.5	0.5	0.6
50th Percentile Start Delay (Hours)	0.0	20.5	21.8	21.6
75th Percentile Start Delay (Hours)	0.0	20.5	24.6	24.6
90th Percentile Start Delay (Hours)	0.0	20.5	48.5	48.5
99th Percentile Start Delay (Hours)	0.0	20.5	120.6	120.6
TOTAL OF ALL CLASSES				
Number Started	29,356	5,643	3,598	38,597

AVAILABILITY STATISTICS, BY MACHINE (AUGUST 31 THROUGH SEPTEMBER 30, 1988)

	Monthly Totals	Scheduled			Unscheduled		
		Hdware	Sftware	Other	Hdware	Sftware	Other
				YELLOW IBM 3033			
All Shifts							
Interruptions	16	4	9			1	2
Hrs Unavailable	10.66	3.46	5.96			0.66	0.56
MTF/Unscheduled	244.44					733.33	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15	4	9				2
Hrs Unavailable	10.00	3.46	5.96				0.56
MTF/Unscheduled	133.00						
				RED IBM 3033			
All Shifts							
Interruptions	2	2					
Hrs Unavailable	1.91	1.91					
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2	2					
Hrs Unavailable	1.91	1.91					
MTF/Unscheduled							

AVAILABILITY STATISTICS, BY SERVICE (AUGUST 31 THROUGH SEPTEMBER 30, 1988)

	Monthly Totals	Scheduled			Unscheduled		
		Hdware	Sftware	Other	Hdware	Sftware	Other
				CMS			
All Shifts							
Interruptions	2	2					
Hrs Unavailable	1.91	1.91					
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2	2					
Hrs Unavailable	1.91	1.91					
MTF/Unscheduled							
				WYLBUR			
All Shifts							
Interruptions	19	4	9		2	2	2
Hrs Unavailable	14.91	3.65	8.70		0.83	1.08	0.65
MTF/Unscheduled	121.51				364.54	364.54	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	18	4	9		2	1	2
Hrs Unavailable	14.23	3.65	8.70		0.83	0.40	0.65
MTF/Unscheduled	52.35				130.88	261.76	
				MVS TSO			
All Shifts							
Interruptions	19	4	9		2	2	2
Hrs Unavailable	15.88	3.65	9.81		0.83	0.93	0.65
MTF/Unscheduled	121.35				364.05	364.05	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	18	4	9		2	1	2
Hrs Unavailable	15.20	3.65	9.81		0.83	0.25	0.65
MTF/Unscheduled	52.16				130.40	260.80	
				JES3			
All Shifts							
Interruptions	16	4	9			1	2
Hrs Unavailable	10.78	3.48	6.06			0.66	0.56
MTF/Unscheduled	244.40					733.21	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	15	4	9				2
Hrs Unavailable	10.11	3.48	6.06				0.56
MTF/Unscheduled	132.94						
				CICS			
All Shifts							
Interruptions	4					2	2
Hrs Unavailable	1.83					1.08	0.75
MTF/Unscheduled	185.54					371.08	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	4					2	2
Hrs Unavailable	1.83					1.08	0.75
MTF/Unscheduled	68.54					137.08	
				VAX/VMS (VAX 8700)			
All Shifts							
Interruptions	1		1				
Hrs Unavailable	0.93		0.93				
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	1		1				
Hrs Unavailable	0.93		0.93				
MTF/Unscheduled							
				CRAY			
All Shifts							
Interruptions	25	6	6			9	1
Hrs Unavailable	28.96	18.41	5.51			4.11	0.91
MTF/Unscheduled	71.50					79.44	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14		6			7	1
Hrs Unavailable	9.38		5.51			2.95	0.91
MTF/Unscheduled	33.32					38.08	

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (OCTOBER 1, 1987, THROUGH SEPTEMBER 30, 1988)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
	ADVANCED PHOTON SOURCE					
130	ADVANCED PHOTON SOURCE DIV	29.9	29.3	0.1	3.8	63.0
140	ELECTROMAGNETIC TECHNOLOGY	0.9	0.2	0.0	0.0	1.1
272	ADVANCED PHOTON SOURCE	0.4	0.0	0.0	0.0	0.4
SUBTOTAL		31.1	29.5	0.1	3.8	64.5
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH					
110	BIO, ENVIR, & MED RES DIV	73.8	19.1	21.8	28.5	143.2
149	BEM DIV-CTR FOR ENVIR RES	46.2	11.5	7.4	8.0	73.2
174	ENER/ENV/BIO RES PROG DIR	3.6	0.0	0.0	0.7	4.2
190	ENERGY & ENVIR SYST DIV	360.2	138.0	11.1	116.4	625.8
197	OFF OF INTER ENERGY DEV PROGS	11.7	0.0	0.0	1.2	13.0
246	TIS - NATL ENERGY SOFTWARE CT	2.0	0.0	0.1	9.3	11.4
274	ENER/ENV/BIO RES PROG ADM	2.8	0.0	0.0	0.9	3.6
SUBTOTAL		500.4	168.6	40.4	165.0	874.4
	ENGINEERING RESEARCH					
102	EBR-II PROJECT-ANL WEST	56.8	0.0	15.8	6.7	79.4
104	EBR-II PROJECT-ILLINOIS	94.5	0.4	0.0	25.4	120.2
107	CHEMICAL TECHNOLOGY DIVISION	58.3	6.0	0.0	163.2	227.5
112	REACTOR ANAL & SAFETY	300.7	5.5	51.3	87.9	445.4
113	REACTOR EXP & EXAM DIV - SARE	0.7	0.0	0.0	0.2	0.9
114	MATLS & COMP TECH DIV	133.3	11.5	1.6	41.7	188.1
115	ENGINEERING DIV - ILL	50.2	6.7	0.1	13.1	70.0
116	APPLIED PHYSICS-ILLINOIS	626.1	15.2	139.1	91.9	872.3
117	APPLIED PHYSICS-ANL WEST	170.1	0.0	20.7	6.6	197.5
118	REACTOR EXP & EXAM DIV	59.6	0.4	0.0	1.3	61.3
119	ANALYTICAL LABORATORY ANL-WES	0.0	0.0	0.0	0.3	0.3
171	ENGRG RES PROG DIR	1.8	0.0	0.0	1.3	3.1
178	FUSION POWER PROGRAM	6.5	0.4	0.0	1.8	8.7
211	ENG DIV-DESIGN ENG DEPT	1.6	0.3	0.0	0.5	2.3
269	CHEM TECH DIV-ANALYTICAL CHEM	2.8	0.1	0.0	1.1	3.9
271	ENGRG RES PROG ADMIN	9.2	0.1	0.0	3.7	13.0
SUBTOTAL		1572.0	46.5	228.7	446.6	2293.8
	EXTERNAL					
750	ACK WORK PROJECTS	28.7	0.0	1.3	7.9	37.9
751	ACK WORK PROJECTS-DIST	56.6	0.0	0.0	5.2	61.9
752		177.7	0.0	0.0	38.2	215.8
753		0.9	0.0	0.0	7.4	8.3
754		0.2	0.0	0.0	1.8	2.0
757		10.5	0.0	0.0	6.7	17.3
SUBTOTAL		274.6	0.0	1.3	67.2	343.2
	OPERATIONS					
143	SUPP SERV DIV - ELEC DEPT	4.5	0.2	0.0	9.2	13.8
148	HUMAN RESOURCES-HEALTH DEPT	17.2	0.0	0.0	2.7	20.0
150	PLANT FAC & SERV - SPEC MATLS	2.9	0.0	0.0	0.7	3.6
161	TECH INFO SERVICES DEPT	21.1	0.0	0.0	16.1	37.2
201	OFFICE OF THE DIRECTOR	7.1	0.0	0.0	4.0	11.1
202	OFC OF CHIEF OPER OFCR	1.0	0.0	0.0	1.4	2.4
210	SUPP SERV DIV - CENT SHOPS	3.3	0.0	0.0	1.1	4.4
216	SUPPORT SERVICES DIVISION	6.0	0.0	0.0	1.4	7.4
222	PLANT FAC & SERV-LODGING FAC	0.0	0.0	0.0	0.3	0.3
232	PLANT FAC & SERV-SECURITY	6.7	0.0	0.0	0.7	7.5
234	SUPP SERV DIV-OHS-HEALTH PHY	3.5	0.0	0.0	1.3	4.8
235	SUPP SERV DIV-ENV SAFE HEALTH	14.1	0.0	0.0	2.4	16.5
236	PLANT FAC & SERV-FIRE DEPT	0.0	0.0	0.0	0.3	0.3
245	SUPP SERV DIV-COMP SERV DEPT	146.7	0.7	8.2	36.1	191.7
247	SUPP SERV DIV-CSD - COM SERV	36.4	0.0	0.0	13.4	49.8
260	SUPP SERV DIV-GRAPHIC ARTS	4.9	0.0	0.0	12.8	17.7
275	OFFICE OF PUBLIC AFFAIRS	12.4	0.0	0.0	0.7	13.1
276	OFC PUB AF - MOTN PIC UNIT	1.2	0.0	0.0	0.1	1.3
315	SUPP SERV DIV-MATLS & SERV	41.8	0.0	0.0	5.5	47.3
316	PLANT FAC & SERV-VEH MAINT	1.7	0.0	0.0	0.9	2.6
317	PLANT FAC & SERV-DRIV&RIG SER	0.8	0.0	0.0	0.4	1.2
319	SUPP SERV DIV-TRAVEL OFC	2.1	0.0	0.0	0.3	2.4
322	SUPP SERV DIV-PROCUREMENT	0.8	0.0	0.0	0.5	1.2
333	QA, ENVIR & SAFETY OFC	1.9	0.0	0.0	0.8	2.7
336	SUPP SERV DIV - INSPECTION	0.2	0.0	0.0	0.0	0.2
400	OFC OF CHIEF FIN OFFICER	229.9	0.0	0.0	54.7	284.6
401	ACCOUNTING	215.0	0.0	0.0	12.4	227.4
402	OFC CHIEF FIN OFCR-DATA ENTRY	0.0	0.0	0.0	1.2	1.2
403	BUDGET OFFICE	0.1	0.0	0.0	0.3	0.4
410	HUMAN RESOURCES DEPARTMENT	190.7	0.0	0.0	14.8	205.5
412	AFFIRM ACTION PROGRAM	2.2	0.0	0.0	1.5	3.7
501	PLANT FAC & SERV-BLDG MAINT	0.7	0.0	0.0	1.4	2.1
502	PLANT FAC & SERV-INSTALLATION	0.0	0.0	0.0	0.3	0.3
503	PLANT FAC & SERV-GROUNDS	0.0	0.0	0.0	0.3	0.3
504	PLANT FAC & SERV-CUSTODIAL	0.0	0.0	0.0	0.3	0.3
505	PLANT FAC & SERV-WASTE MGMT O	1.2	0.0	0.0	0.6	1.8
506	PLANT FAC & SERV-PLANT MGR OF	7.1	0.0	0.0	1.2	8.4
510	PLANT FAC & SERV-UTILITY SYST	0.0	0.0	0.0	0.3	0.3
512	PLANT FAC & SERV-FAC PLNG/ENG	14.7	0.0	0.0	1.9	16.6
530	SITE MGRS OFC-ANL WEST	1.6	0.0	0.0	0.3	1.9
531	PERSONNEL-ANL WEST	1.8	0.0	0.0	0.3	2.1
532	SPECIAL MATLS-ANL WEST	17.9	0.0	0.0	2.8	20.7
533	ACCOUNTING-ANL WEST	0.0	0.0	0.0	0.3	0.3
534	PURCHASING-ANL WEST	0.2	0.0	0.0	0.3	0.5
535	SECURITY - ANL WEST	0.4	0.0	0.0	0.3	0.7
536	SAFETY STAFF-ANL WEST	3.6	0.0	0.0	0.3	3.9
537	INFORMATION SERVICE-ANL WEST	0.0	0.0	0.0	0.3	0.3
538	MATLS HANDLING-ANL WEST	1.5	0.0	0.0	0.3	1.9
550	COMPUTER APPL & SERV - ANL-W	5.1	0.0	0.0	0.5	5.7
551	RAD MONITORING-ANL WEST	0.1	0.0	0.0	0.3	0.5
554	MACHINE SHOP-ANL WEST	0.6	0.0	0.0	0.3	0.9
556	SITE ENGRG-ANL WEST	3.5	0.0	0.0	1.1	4.6
557	PLANT SERVICES-AW-SERVICE REQ	2.3	0.0	0.0	0.3	2.6
558	PLANT SERVICES-AW-FUNCTION	0.1	0.0	0.0	0.0	0.1
559	FOOD SERVICES - ANL WEST	0.0	0.0	0.0	0.3	0.3
561	OFC OF QUALITY ASSURANCE - AW	0.2	0.0	0.0	0.3	0.5
563	TALENT RESOURCE POOL-ANL WEST	0.0	0.0	0.0	0.3	0.3
730	OPERATING WORK PROJECTS	0.0	0.0	0.0	15.4	15.4
SUBTOTAL		1038.9	0.9	8.2	228.2	1276.2
	PHYSICAL RESEARCH					
105	MATERIALS SCIENCE DIVISION	54.8	36.9	219.5	38.3	349.6
109	PHYSICS DIV	62.5	12.7	35.4	25.3	135.8
120	CHEMISTRY DIV	31.5	45.8	10.8	23.6	111.7
136	INT PULSED NEUT SOURCE PROG	8.1	0.5	2.1	21.5	32.2
137	HIGH ENERGY PHYSICS DIV	18.2	10.9	111.3	2.4	142.8
139	DIV OF EDUCATIONAL PROGRAMS	28.7	0.1	0.0	6.3	35.1
145	MATHEMATICS & COMPUTER SCI DI	7.9	3.3	52.4	53.7	117.3
273	PHYSICAL RESEARCH PROGRAM ADM	2.1	0.0	0.0	0.5	2.6
SUBTOTAL		213.8	110.1	431.4	171.8	927.1
TOTAL		3630.9	355.7	710.0	1082.7	5779.2

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 312)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	6-7463	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	6-7005	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	6-7005	972-7612
300 Bits Per Second	2-7603	6-7005	972-7603
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	6-8700	972-8700
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
ARPAnet Data Communications Network			
1,200 to 2,400 Bits Per Second Full-Duplex	2-7490	n.a.	972-7490

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**	**ARPAnet**
Monday to Thursday	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

* Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

SUBJECT INDEX FOR CALENDAR YEAR 1988 (11/88)

These entries refer to *Newsletters* published in 1988. All previous *Newsletters* are indexed in the December 1987 issue of the *Newsletter* or use the LOOKUP command in CMS, Wylbur, and distributed VAX computers.

- Account aliases
  - VAX NJE users may specify for MVS batch jobs ... 2518
- Administrative Long-Range Plan ... 2559
- Administrative systems disaster recovery plan ... 2578
- Advanced Computing Research Facility (ACRF) ... 2513
  - parallel computing class ... 2467, 2478, 2487, 2499, 2514, 2525, 2577
  - programming techniques seminar ... 2514, 2525
  - two-week Institute in parallel computing ... 2525
  - update ... 2478
- Advanced Computing Seminars ... 2489, 2500, 2577
- Answer/DB
  - computer-based training course available in CMS ... 2479
- ANSYS Structural Analysis Program
  - available on the VAX 8700 ... 2570
  - graphs may be sent to Argonne plotters ... 2599
  - to move from MVS batch to VAX 8700 ... 2543
- Apple Computer
  - MacKermit Version 0.9(40) available for the Macintosh ... 2572
- Apple LaserWriter
  - upgrade kit available ... 2487
- Application System
  - Project Management Office evaluation ... 2497
- Argonne NJE Network
  - distributed VAX printers available ... 2599
- ARPAnet
  - ANL access changes ... 2568
  - BITnet gateway changes ... 2458
- Asynchronous Data Interface (ADI)
  - use MKO with ... 2531

- Biomedical Computer Programs (BMDP)
  - BMDP-87 ... 2480
- BITnet
  - discussion groups available ... 2532
  - network ... 2467, 2493, 2518, 2550, 2584
- BLOWUP
  - available on color plotter ... 2489

- CAI (Computer-aided instruction)
  - available for Datatrieve ... 2519, 2571
  - available for EVE ... 2519
- CalComp
  - last pen plotter decommissioned ... 2503
- CalComp 5835XP color plotter
  - BLOWUP feature available ... 2489
  - STACK3 feature available ... 2489
- CAL580
  - old CalComp plotter decommissioned ... 2503
- CAL780
  - old CalComp plotter decommissioned ... 2503
- CAL936
  - old CalComp plotter decommissioned ... 2503
- CBT ... (see Computer-based training)
- CICS
  - computer-based training courses available in CMS ... 2559
  - new application menu screen ... 2526
  - new screen planned ... 2487
- CMS
  - Computer Graphics Metafile (CGM) graphics capabilities available for testing ... 2547
  - computer-based training (CBT) courses available ... 2559
  - Disspla 10.5 available for testing ... 2502
  - Kermit upgrade ... 2545
  - PL/I Checkout Compiler removal ... 2588
  - PL/I Optimizing Compiler available for testing ... 2500
  - Speakeasy IV Version Epsilon available for testing ... 2526
  - Tellagraf Version 6.1 available for testing ... 2502
  - upgrade to Release 5 ... 2480
  - VM/SP Release 5 available for testing ... 2515
  - Waterloo C (Version 3.0)
    - available for testing ... 2515
- CMS execs
  - TESTCMS ... 2480
- COBOL
  - computer-based training courses available in CMS ... 2559
- Compilers
  - Cray CFT77 Fortran compiler now available ... 2501
- Computer Graphics Metafile (CGM) graphics capabilities
  - available for testing in CMS ... 2547
  - available for testing in MVS ... 2547
  - available in VMS ... 2566

Computer Output and Document Distribution Area (Building 221)
  renovation of ... 2482
Computer protection ... 2577
Computer Users Group
  current officers and subcommittees ... 2506
Computer-based training (CBT)
  available in CMS ... 2559
  courses ... 2479
  Language Sensitive Editor computer-based training available ... 2491
Computing and Telecommunications Division
  established ... 2543
Computing Center
  1988 holiday schedule ... 2488
Computing Center service schedule
  Christmas 1988 and New Year's 1989 holidays ... 2596
  Fourth of July 1988 holiday ... 2513
  Labor Day 1988 holiday ... 2544
  Memorial Day 1988 holiday ... 2499
Connection Machine
  acquired by Mathematics and Computer Science Division ... 2513
Consulting
  assistance available through electronic mail ... 2543
Cray UNICOS
  managing program products ... 2545
  new CFT compiler available ... 2545
  standby batch service increased to weeknights ... 2501
Cray X-MP/14 high performance computer
  Disspla Version 10.0 installed in UNICOS ... 2501
  DS-40 disk subsystem ... 2598
  increased UNICOS disk space ... 2528
  operating schedules for UNICOS ... 2465
  rates approved ... 2466
  TCP/IP access for testing ... 2527
  TCP/IP access to ... 2568
  test of IBM disks attached to ... 2529
  testing IBM 3380 disks ... 2561
  UNICOS 3.0 available ... 2465
  update ... 2453, 2465
  VAX/VMS station available for general use ... 2528
  WAIT time charge suspended ... 2528
CRWTH ... 2479, 2559
Cuechart
  Version 2.1 ... 2502

Data security ... 2577
Datatrieve
  computer-based courses available in CMS ... 2571
  computer-based courses available on VAX 8700 ... 2519
DECnet
  NJE service rates revised ... 2584
  NJE services available to VAX ... 2584
DFSORT
  available for testing in MVS batch ... 2549
  fast copy program provided ... 2598
Disk
  acquisition ... 2595
Disks
  attached to Cray X-MP/14 ... 2529
Disspla
  Version 10.0 installed in Cray UNICOS ... 2501
Disspla 10.5
  available for user testing in CMS ... 2502
  available for user testing in MVS ... 2529
Distributed Array Processor (DAP) ... 2478
Documentation
  recently updated and published ... 2458, 2480, 2492, 2505, 2537, 2551, 2588, 2600
  UNICOS document available ... 2518

Electronic mail
  consulting ... 2543
  discussion groups available on BITnet ... 2532
Electronic publishing
  Texet ... 2478
EVE computer-based instruction available ... 2519
Expert systems
  course in Prolog and basic tools ... 2453
Ezpert
  Version 5.5 installed ... 2497

FETCH command failures ... 2498
Film developing schedule 7/88 ... 2529
Financial Management System (FMS) ... 2559
  fiscal year closing ... 2578
Focus
  computer-based training courses available in CMS ... 2479

Graphics
    BLOWUP and STACK3 features available on color plotter ... 2489
    CalComp pen plotter (last one) decommissioned ... 2503
    Disspla 10.0 installed in Cray UNICOS ... 2501
    Disspla 10.5 available for testing ... 2502, 2529
    G1DATA conversion to CA/ISSCO metafiles available ... 2503
    metafile conversion to CA/ISSCO available ... 2503
    negatives available from Matrix camera ... 2489
    SuperImage software for personal computers ... 2456, 2546
    Tellagraf 6.1 available for testing ... 2502
    Versatec decommissioning planned ... 2503
    viewgraphs available from Matrix camera ... 2489
G1DATA
    metafile conversion to CA/ISSCO available ... 2503

Hydra Protocol Converter
    available as IBM full screen emulator ... 2570
    available for testing ... 2532
    available offsite at 2400 baud ... 2490
    Insert options poll ... 2572
    new terminal selection menu ... 2532

IBM Personal Computer
    recommended Ethernet boards for ... 2537
    SuperImage graphics software ... 2456
IBM 3033
    Replacement Committee recommendations ... 2595
    replacement planning initiated ... 2453
    task force membership ... 2453
IBM 3380 disks
    testing on Cray X-MP/14 ... 2561
ICEGENER
    new alternative for IEBGENER ... 2598
ICUSER
    computer-based training course available in CMS ... 2479
IEBGENER
    ICEGENER new alternative for ... 2598
IMSL library
    Converting to Edition 10.0 ... 2565
    Edition 10.0 available in UNICOS ... 2563
    IMSL Edition 10.0 compatibility with IMSL on other ANL systems ... 2564
Inquire Database Management System
    Release 87.1 available for testing in CMS ... 2597
Integrated Financial System (IFS) ... 2559
    FY1989 implementation milestones ... 2558
    update ... 2578, 2596
International Atomic Energy Agency (IAEA)
    network ... 2572
Internet
    conversion to domain names ... 2568
ISPF
    computer-based training courses available in CMS ... 2479
Itel disk equipment
    removal of ... 2456

JES3
    some MVS FORMS names changing ... 2583
Job scheduling
    UNICOS batch service queues ... 2580
    UNICOS scheduling by priority ... 2580

Laboratory-Wide Administrative Database (LADB)
    HRS replacement plans ... 2597
Language Sensitive Editor
    available on the VAX 8700 computer ... 2491
    computer-based training available ... 2491
LaTeX now available on VAX 8700 computer ... 2535
Librarian
    Version 3.7 with LIBAUDIT ... 2548
Local area network (LAN) Ethernet
    reliability improved ... 2490

Machine Keyboard Origination (MKO)
    use with ADIs ... 2531
MacKermit Version 0.9(40) available for Apple Macintosh ... 2572
MACSYMA available on the VAX 8700 ... 2534
Management Information Systems Section, new ... 2558
Mass-11 word processor available on VAX 8700 ... 2571
Materials Catalog (MCAT) ... 2500
Mathematics and Computer Science Division
    VAX to be decommissioned 9/30/88 ... 2557
Matrix camera
    viewgraph development schedule ... 2529
    viewgraphs and negatives available ... 2489
MFEnet
    upgraded to MFEnet II ... 2570
MFEnet II ... 2570
Multiprocessing ... 2478, 2513

MVS
  Computer Graphics Metafile (CGM) graphics capabilities available for testing ... 2547
  DFSORT available for testing ... 2549
  maximum region size reduced ... 2531
  PL/I Checkout Compiler removal ... 2588
  PL/I Optimizing Compiler 5.1 available for testing ... 2549
  PMS IV to be removed ... 2583
  some FORMS name changing ... 2583
  VAX NJE users may specify account alias for batch jobs ... 2518
  VS Fortran Version 2.3.0 available for testing ... 2567

NAG library
  G floating-point NAG library available on VAX 8700 ... 2504
  Mark 11 Version to be removed from VAX 8700 ... 2551
  Mark 12 Version available in UNICOS ... 2562
Negative film
  available from Matrix camera ... 2489
NJE nodenames (Germantown) changed ... 2585

Office Systems
  computer-based training courses available in CMS ... 2559

PBX
  acceptance ... 2531
Personal computers
  OS/2 considerations ... 2457
  SuperImage graphics software ... 2456
Phased disk replacement
  elimination of TSPERM ... 2456
  elimination of TSP60n disks ... 2456
PL/I
  Checkout Compiler removal ... 2588
  Optimizing Compiler available for testing in CMS ... 2500
  Optimizing Compiler 5.1 available for testing in MVS batch ... 2549
Printers
  printer in 201 for reports ... 2579
PROFS
  Version 2 Release 2 installation plans ... 2544
Project Management System (PMS IV) ... 2497
  to be removed from MVS ... 2583
Protection
  computer protection ... 2454

RACF
  installation procedure ... 2454
  passwords stored in encoded format ... 2519
Reports, printing in 201 ... 2579

Service rates
  Cray X-MP/14 rates approved ... 2466
  FY1989 ... 2601
  surcharge to non-ANL users increased ... 2487, 2499, 2557
  UNICOS charging by queue ... 2580
  UNICOS charging by shift ... 2580
Service Schedule
  Computing Center ... 2465
Services (computer maintenance)
  available from Electronics ... 2498
SPCAL580
  old CalComp plotter decommissioned ... 2503
SPCAL780
  old CalComp plotter decommissioned ... 2503
SPCAL936
  old CalComp plotter decommissioned ... 2503
Speakeasy
  IV Version Epsilon available for testing in CMS ... 2526
SPFVERS11
  Versatec decommissioning planned ... 2503
SQL
  computer-based training courses available in CMS ... 2479
Statistical Analysis System
  videotapes available ... 2566
Statistics
  Computing Center Use in Dollars by Cost Center replaced ... 2601
STORECAT ... 2500
Stores Catalog ... 2500
SuperImage graphics software ... 2456, 2490
  hardcopy output ... 2546
SuperImage 1.5 upgrade now available ... 2598
S33B
  being removed on 9/30/88 ... 2582, 2601

Tape
  available in UNICOS ... 2517
  releasing unneeded ... 2513
TCP/IP
  access to Cray X-MP/14 available ... 2568
  conversion to domain names on the Internet ... 2568
  Cray UNICOS testing ... 2527
Tellagraf
  Version 6.1 available for testing in CMS ... 2502

- Terminals
  - Hydra Protocol Converter available for testing ... 2532
- TESTCMS execs ... 2480
- TeX now available on VAX 8700 computer ... 2535
- Texet electronic publishing system ... 2478
- TSO
  - computer-based training course available in CMS ... 2479
- TSPERM
  - datasets moved to PERM ... 2456
  - no longer defined ... 2456
  - removed through phased disk replacement ... 2456

- UNICOS
  - classes ... 2465
  - commands
    - ja ... 2579
    - jad, jar ... 2579
    - tape processing ... 2579
  - Cray CFT77 Fortran compiler now available ... 2501
  - documentation available ... 2518
  - file transfer between UNICOS and MVS ... 2581
  - file transfer between UNICOS and VAX/VMS ... 2581
  - IMSL Edition 10.0
    - MATH/LIBRARY ... 2563
    - SFUN/LIBRARY ... 2563
    - STAT/LIBRARY ... 2563
  - IMSL Edition 10.0 Library available ... 2563
  - libraries
    - renamed for UNICOS 4.0 ... 2561
    - shell variables changed ... 2561
  - NAG Mark 12 Library available ... 2562
  - NQS batch job resource defaults ... 2581
  - NQS batch job resource limits ... 2581
  - NQS batch job scheduling by priority ... 2580
  - NQS batch job scheduling changes ... 2580
  - NQS batch job service queues ... 2580
  - operating schedules on Cray ... 2465
  - segldr
    - directives, DUPENTRY ... 2561, 2562, 2563
    - directives, LIB ... 2562, 2563
    - libraries, ANLUTIL ... 2561
    - libraries, Disspla ... 2561
    - libraries, IMSL ... 2561, 2563
    - libraries, NAG ... 2561, 2562
    - libraries, pathnames ... 2561, 2562, 2563
    - libraries, shell variables ... 2561, 2562, 2563
    - libraries, SLATEC ... 2561
    - libraries, specifying ... 2561
    - options ... 2562, 2563
  - tapes available ... 2517
  - update ... 2477
- UNICOS 3.0
  - available on Cray X-MP/14 ... 2465
- UNICOS 3.0.11
  - in production ... 2500
- UNICOS 4.0
  - acquire/fetch/dispose default file format to change ... 2581
  - commands
    - scpqsub, scpreroute ... 2579
    - uscpqsub, uscproute ... 2579
  - commands renamed in ... 2579
  - conversion schedule for ... 2560
  - converting from UNICOS 3.0 ... 2579
  - job accounting command changes ... 2579
  - using tapes in ... 2579
- Unix
  - available on VAX 8700 ... 2470
- User assistance
  - consulting available through electronic mail ... 2543
- USERDETAIL command
  - available on VAX 8700 ... 2473

- VAX Supercomputer Gateway
  - available for general use ... 2528
  - testing ... 2516
- VAX 8700 computer system
  - ANSYS available on ... 2570
  - batch queue names ... 2586
  - cluster upgraded to Version 4.7 ... 2550
  - cluster upgraded to Version 5.0 ... 2599
  - computer-based instruction
    - available for Datatrieve ... 2571
    - available for EVE and Datatrieve ... 2519
  - G Floating-point NAG library available ... 2504
  - GNU-EMACS text editor available ... 2587
  - group manager role created ... 2505
  - Language Sensitive Editor available ... 2491
  - LaTeX now available ... 2535
  - MACSYMA available on ... 2534
  - Mass-11 word processor available ... 2571
  - NAG Mark 11 Library to be removed ... 2551
  - online Desk Calculator ... 2535
  - remote printer service available ... 2534
  - software upgrades ... 2473
  - TeX now available ... 2535
  - text editors available ... 2586
  - Unix available on ... 2470
  - USERDETAIL command available on ... 2473

VAX/VMS
  command line editing ... 2468, 2469
  command line recall ... 2469
  Computer Graphics Metafile (CGM) graphics capabilities available ... 2566
  NJE services now available to DECnet nodes ... 2584
  print capability extended ... 2491
  software distribution kit sharing procedure extended ... 2490
  users may submit account alias for MVS batch jobs ... 2518
Versatec
  planned decommissioning ... 2503
VERS11
  Versatec decommissioning planned ... 2503
Viewgraphs
  available from Matrix camera ... 2489
  schedule ... 2529
Virtual Machine System Product Release 5 (VM/SP5)
  available for testing ... 2515
VM/SP5 ... (see Virtual Machine System Product Release 5)
VS COBOL II
  computer-based training courses available in CMS ... 2559
VS Fortran
  Version 2.3.0 available for testing in MVS batch ... 2567

WAIT time
  on Cray, charge for suspended ... 2528
Waterloo C
  version 3.0 available for testing in CMS ... 2515
Wylbur
  fetch failures ... 2498

X.25
  expanded access ... 2490

3380 disks
  reorganization ... 2595
3480-type tape drive acquisition ... 2595

CTD currently offers 29 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	**Course Title**
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS Editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers

IBM CBT Course

SLFTEACH	Introduction and Advanced Concepts of Xedit

CRWTH CBT Courses

General Data Processing Courses	
DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center
Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CICS Course	
CICSPI	CICS Concepts and Facilities
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
Cobol Course	
COBOL2	VS COBOL II: Making the Transition
Office System Course	
OFFICE	Office System Skills and Concepts
PROFS Courses	
PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
SORTMRG	Using SORT/MERGE Utilities
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Course	
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)
Miscellaneous Courses	
(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)	
ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

☆ U.S. GOVERNMENT PRINTING OFFICE 1988—643-156/80005

ARGONNE COMPUTING NEWSLETTER

Argonne National Laboratory Computing and Telecommunications Division

VOLUME 19 NUMBER 12 DECEMBER 1988

COMPUTING COMMENTS

Incentive Plan Replaces Floors ... 2607
Computing Rates for Outside Users ... 2607
Christmas Through New Year's Holiday and Laboratory Closing Service Schedule ... 2607
Mathematics and Computer Science Parallel Computing Classes ... 2607
Computing Classes Scheduled for January 1989 ... 2608
High Performance Computing Seminars ... 2609

COMPUTER PROTECTION

ANL Provides Computer Protection Plans To Comply with Computer Security and Privacy Act of 1987 ... 2609
Incident Reporting Procedures Approved by the Computing Policy Committee ... 2609
Inspection of Areas for ANL Compliance with DOE Order 1360.2A ... 2609

CRAY NEWS

UNICOS 4.0 in Production ... 2610
Cray UNICOS Job Scheduling Improved ... 2610
DS-40 Disk Subsystem Increases Storage on Cray ... 2610

MANAGEMENT INFORMATION SYSTEMS

Management Information Systems Development Funding for FY1989 ... 2610
Financial Reporting Working Group Formed ... 2611
Integrated Financial System Education Schedule Announced ... 2611
New MS-Kermit Commands Automate Onsite Login for SNA, CICS, VAX, and MCAT ... 2612
Entrex Scheduled for Decommissioning ... 2612

PERSONAL COMPUTING

Kermit Version 2.31 Available for IBM Personal Computers ... 2613
Plan To Coordinate DBase IV Upgrades for ANL ... 2613

TELECOMMUNICATIONS NEWS

New Microwave System Between ANL and FNAL Scheduled for Installation in January 1989 ... 2614
TYMUSA Tymnet International Service ... 2615
NCSA Telnet Program Available for IBM Personal Computers ... 2615
NCSA Telnet and tn3270 Available for Apple Macintosh Personal Computers ... 2615
New Additions to BITnet University Network ... 2616

BITS & BYTES

V/Spell Spelling Verification Program in CMS To Be Discontinued ... 2617
Recently Updated and Published Documents ... 2617
Cumulative Subject Index ... 2618

USERS GROUP HIGHLIGHTS

Minutes of Computer Users Group Meeting Held November 1, 1988 ... 2619
Minutes of Macintosh Users Group Meeting Held November 9, 1988 ... 2620
Minutes of Graphic Arts Users Group Meeting Held November 11, 1988 ... 2621

COMPUTING CENTER STATISTICS

COMPUTING CENTER TELEPHONE NUMBERS AND SERVICE SCHEDULE

CUMULATIVE SUBJECT INDEX THROUGH DECEMBER 1988

APPENDIX

Computing Center Classes

OSITORY
FEB 7 1989
UNIVERSITY OF ILLINOIS
MPAIGN

COMPUTING AND TELECOMMUNICATIONS DIVISION
Argonne National Laboratory
Building 221
Argonne, Illinois 60439

The Computing and Telecommunications Division (CTD) provides a state-of-the-art computing and telecommunications foundation for Argonne's scientific and technical programs and administrative activities. The Division performs research and development in advanced scientific computing and telecommunications. Additionally, the Division manages the Laboratory's supercomputing and large-scale central computing facilities and voice and data communication systems.

		Room	**Phone**	**Electronic Mail Address**
Director, Computing and Telecommunications	David Weber	A251	2-7155	B22788 AT ANLVM
Computer Networks	Larry Amiot	B243	2-5432	B10523 AT ANLVM
Telephone Services	Allen Winter	B247	2-2764	B07059 AT ANLVM
Telecommunications	Bob McMahon	B239	2-7270	B17385 AT ANLVM
Service Engineering	Forrest Salter	B159	2-5427	B06225 AT ANLVM
Computer Operations	Gary Schlesselman	A113	2-5437	B09819 AT ANLVM
Day and Weekend Operation	Bob Bilshausen	A134	2-5421	
Document Distribution Counter		A134		
Evening and Overnight Operation	Mike Monczynski	A134	2-5421	
Tape Librarian	Sandra Vasko	A134	2-7681	B18669 AT ANLVM
Computer Protection Program Manager	Jean Troyer	A237	2-7440	B18216 AT ANLVM
Information Systems	Diane Hale	A217	2-7167	B26424 AT ANLVM
Financial Systems	Nick Moore	D239	2-8075	B31048 AT ANLVM
Human Resource and Plant Services Systems	Bob Hischier	A221	2-7272	B22639 AT ANLVM
Material Systems	Miriam Bretscher	A205	2-7252	B26187 AT ANLVM
Information Technology Resources Planning	Mike Boxberger	A245	2-5639	B34540 AT ANLVM
Systems Programming	Doug Engert	B231	2-5444	B17783 AT ANLVM
User Services	Fred Moszur	A121	2-7419	B27564 AT ANLVM
Computer Use Authorizations	Fran Carnaghi	A147	2-5425	B27596 AT ANLVM
Consultants		A139	2-5405	CONSULT AT ANLVM
Documentation Advice		A139	2-5405	CONSULT AT ANLVM
Education and Assistance	Rich Slade	B139	2-7674	B32848 AT ANLVM

The Division operates a Cray X-MP/14 with UNICOS 4.0, a Sun 3/280, a DEC VAX-11/750, a DEC VAX 8700, a DEC VAX 8250, two IBM 3033s (one with an IBM 3042 Attached Processor), and two Hewlett-Packard Series 3000 computers. Software on the IBM computers includes VM/SP CMS Release 5, MVS SP Release 1.3.5 with JES3 Release 1.3.4 and the Time Sharing Option (TSO), and OBS Wylbur Release 7.0. Manuals, back copies of the *Newsletter*, program write-ups, and other documentation are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). To be added to the *Newsletter* mailing list, call Claudette DaCosse at 312-972-5415.

The *Argonne Computing Newsletter* is published monthly by the Computing and Telecommunications Division, Argonne National Laboratory, Argonne, Illinois 60439; edited, prepared, and formatted by April Heiberger with CMS, Waterloo Script, and the Linotype L300P typesetter. This *Newsletter* was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

COMPUTING COMMENTS

INCENTIVE PLAN REPLACES FLOORS

The Laboratory Management Council has endorsed the FY1989 funding plan for central computing, which includes an incentive plan to replace the FY1988 spending "floors" for central computing. This incentive plan offers divisions the opportunity to earn an incentive fee of 35 percent for new or increased use of central computing resources that exceed their designated base level of computing. The base levels for each division have been developed by using an extrapolation of May and June 1988 actual charges to cost centers. To fund the incentive plan and to ensure full cost recovery for central computing, the Management Council has designated approximately a one percent increment to the Laboratory's Indirect Rate to establish an incentive plan pool of approximately $1.7 million.

Additionally, the Computing and Telecommunications Division (CTD) has prepared the FY1989 rate structure to ensure full cost recovery under equilibrium use levels (see *Computing and Telecommunications Division Rates* attached to the back of the October 1988 *Newsletter).* We have established the incentive plan and the FY1989 rate structure to encourage full use of central computing resources and to ensure full cost recovery. When we achieve equilibrium use, the Laboratory will be able to begin reduction or to eliminate the incremental increase in the Indirect Rate. With the continued participation of computer users, we can achieve this objective prior to the start of FY1990. CTD will provide additional implementation details, cost center base levels, and related incentive program activities in the January 1989 *Newsletter*.

COMPUTING RATES FOR OUTSIDE USERS

Outside users who are funded by DOE but not by ANL currently pay Laboratory indirect rates that bring their total computing costs to approximately 125 percent of their computing bill. Outside users who are funded neither by DOE nor by ANL pay additional costs (including depreciation and DOE overhead) that bring their total computing costs to approximately 160 percent of their computing bill. However, those using the Cray incur the 125 percent rate whether or not DOE funds them, because for FY1989 DOE has waived overhead charges for outside Cray use.

CHRISTMAS THROUGH NEW YEAR'S HOLIDAY AND LABORATORY CLOSING SERVICE SCHEDULE

All the computing systems will operate throughout the 11-day period from Friday, December 23, 1988, through Monday, January 2, 1989. At least one computer operator will be available throughout the period (except for Christmas Eve, Christmas Day, New Year's Eve, and New Year's Day, when no operator will be available). Weekend computer rates will prevail throughout the period beginning at 12:01 a.m. on Friday, December 23, 1988, until 7:00 a.m. on Tuesday, January 3, 1989. The two 48-hour unattended periods will be from 12:30 a.m. on Saturday, December 24, 1988, until 12:30 a.m. on Monday, December 26, 1988, and from 12:30 a.m. on Saturday, December 31, 1988, until 12:30 a.m. on Monday, January 2, 1989. During these two periods, all computing systems (UNICOS, MVS batch, Wylbur, CMS, VAX/VMS, and TSO) and the MFEnet gateway will remain operating but will be unattended. No operator will be available to mount tapes, distribute output, handle special requests, or recover systems that fail to operate properly.

Building 221 will be locked when the computers are unattended, but keys will be available at the Northgate Road entrance. Users who have special requirements for service during these periods should call the Computer Operations Manager at extension 2-5437.

MATHEMATICS AND COMPUTER SCIENCE PARALLEL COMPUTING CLASSES

The Mathematics and Computer Science Division will offer several three-day classes (9:00 a.m. to 4:30 p.m.) on parallel programming to familiarize potential users with the Advanced Computing Research Facility (ACRF) multiprocessors and parallel programming in general.

The class will cover the following topics: (1) automatic parallelizing compilers, (2) packages for portable parallel programming (including the Monitor package and the Schedule package), (3) the Intel hypercubes, (4) the Distributed Array Processor (DAP), and (5) the Connection Machine.

A portion of the third day will be devoted to each attendee's particular project. The class will include lectures and hands-on work on the parallel computers in the ACRF. At the completion of the class, the participants will have written and run programs on each machine and should be familiar with the ACRF environment. Fortran will be the primary programming language. Knowledge of Fortran and Unix is necessary.

To become familiar with Unix, refer to *A Practical Guide to UNIX System V* (0-8053-8915-6), available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

The schedule of classes for 1989 is:

January 18, 19, and 20
March 15, 16, and 17
May 3, 4, and 5
June 21, 22, and 23
August 16, 17, and 18
October 11, 12, and 13

To register for the class, contact Teri Huml at (312) 972-7163 or at electronic mail address huml@anl-mcs.arpa. There is a $25.00 charge for this class.

COMPUTING CLASSES SCHEDULED FOR JANUARY 1989

During January 1989, the Computing and Telecommunications Division (CTD) will offer one demonstration and six classes. The schedule is appended to this *Newsletter*. To register, call or visit the Computing and Telecommunications Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of classes and notify attendees of any schedule changes. Computing and Telecommunications will reschedule or cancel classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Introduction to Computing Facilities and Services (one 3-hour session) provides an overview of the computing facilities and services available at Argonne. There will be a demonstration of how to use CMS, Wylbur, MVS batch, VAX/VMS, Cray UNICOS, and computer-based training. New Argonne computer users, as well as anyone else interested in computing at Argonne, should attend this class.

Using Computer-Based Training (a one-hour demonstration) explains how to use available computer-based training (CBT) courses. CBT training documents for various CRWTH Computer Coursewares courses will be on display. After a brief demonstration of how to access and use any of the available courses, students will be able to try out the courses on terminals in the classroom.

Introduction to Wylbur for Text Editing (one 3-hour session) explains how to use Wylbur, an efficient easy-to-learn interactive editing system ideally suited for users of the MVS batch computing system. You can use Wylbur interactively to create and modify programs, data, and text; to submit MVS and UNICOS batch jobs; and to review MVS and UNICOS batch output.

Introduction to UNICOS and Shell Programming (two 3-hour sessions) is for new users who want basic information on UNICOS and shell programming on the Cray X-MP/14 high performance computer. The class covers introductory material on the Unix file system, space management, and shell programming.

Using the Cray X-MP from the MVS Station (two 3-hour sessions) is for Cray X-MP/14 users who want to learn how to submit jobs and to manage Cray files from the MVS front-end station. This class builds on concepts covered in "Introduction to UNICOS and Shell Programming" by providing examples of how to submit various Cray batch jobs from other ANL computing systems (including CMS, MVS, and VAX/VMS).

Introduction to VAX/VMS (one 3-hour session) is for first-time VAX/VMS users who need an overview of the VAX architecture and features available in VAX/VMS. Attendees will become familiar with available VMS documentation and will learn how to logon to VMS, to create files, to set up subdirectories, to compile and link programs, to submit batch jobs, and to use the online HELP facilities. Also, attendees will learn how to access the companion computer-based instruction courses, "Introduction to VAX/VMS" and "Introduction to EDT." Everyone registering for this class should request an account on the VAX 8700 to access the computer-based instruction courses. To request an account, call Account Services at extension 2-5425.

Using VAX/VMS (one 3-hour session) will acquaint VMS users with features of VMS. Topics include writing DCL (Digital Command Language) procedures; reviewing VMS internals; and using the VMS system debugger, the runtime library, and system services.

HIGH PERFORMANCE COMPUTING SEMINARS

The series of seminars is continuing. Upcoming talks for the month of December are:

Willi Schonauer, Universitat Karlsruhe
Why I Like Vector Computers
Friday, December 9, 1988

John Gilbert, Xerox Palo Alto Research Center
To Be Announced
Wednesday, December 14, 1988

Check the *Argonne Bulletin* and the special announcements for the times and locations of the seminars. To have your name added to the distribution list for abstracts, please contact Claudette DaCosse at extension 2-5415. The seminar chairman is Jack Dongarra.

COMPUTER PROTECTION

ANL PROVIDES COMPUTER PROTECTION PLANS TO COMPLY WITH COMPUTER SECURITY AND PRIVACY ACT OF 1987

In January 1988, Congress passed the Computer and Privacy Act of 1987. One of its requirements is for contractors to submit a protection plan for every sensitive computer system to the National Institute of Science and Technology (formerly the National Bureau of Standards). The required plans are in summary form and contain answers to several questions about whether or not specific protection mechanisms exist.

ANL has chosen to submit four such summary plans for the entire Laboratory. These plans represent four categories of protection requirements: (1) single user systems with only copies of sensitive information, (2) single user systems with original (or official) sensitive information, (3) distributed divisional computers containing sensitive information, and (4) multi-use computers containing originals of sensitive information.

Each manager or owner of a sensitive system must choose one of the four summary plans that best fits that system and then produce a complete detailed protection plan. ANL submitted the draft summary plans to the Department of Energy Chicago Operations Office (DOE-CH) by the required November 18, 1988, date and will finalize them by December 5, 1988. Argonne has notified those persons responsible for sensitive systems that they must complete their individual protection plans by December 2, 1988.

INCIDENT REPORTING PROCEDURES APPROVED BY THE COMPUTING POLICY COMMITTEE

DOE Order 1360.2A on computer protection issued in May 1988 replaces DOE Order 1360.2. One of the new requirements of the replacement order is that every site establish procedures for identifying computer security incidents and for reporting significant events. Significant events include (but are not limited to) deliberate destruction or unauthorized modification of sensitive data; incidents that result in loss, harm, or embarrassment to DOE; events whose reporting could benefit other DOE installations susceptible to the same threats; and criminal actions. All Laboratory employees who discover such events must report such actions to ANL management and the Computer Protection Program Manager, who in turn must notify DOE.

Lesser incidents include (but are not limited to) sharing of computer accounts and passwords, use of ANL computers for games or personal business, and break-ins or concentrated attempts to break into systems by unauthorized persons. You must report lesser incidents to your supervisor and the Assistant Computer Protection Program Manager for the computer involved, but DOE does not need to be informed of them.

At the November 1988 meeting, the Computing Policy Committee approved the draft of these procedures and recommended that the Laboratory issue these procedures as official Laboratory procedures and distribute them to all employees.

INSPECTION OF AREAS FOR ANL COMPLIANCE WITH DOE ORDER 1360.2A

During November 1988, the Department of Energy Chicago Operations Office (DOE-CH) was scheduled to inspect ANL compliance with DOE Order 1360.2A. In late spring 1988, DOE issued Order 1360.2A to replace Order 1360.2. Both orders require sites to establish and maintain a computer protection program as defined by the respective order. The areas scheduled for the November 1988 inspection included central computing and networking, information systems, and distributed divisional computing centers and NBI word processors. The inspection of each area was to include a tour of the computing equipment and an examination of the protection plan for the equipment and data. DOE-CH has postponed this inspection until late January 1989. We will contact those to be inspected when we have firm dates. For more information, contact the Computer Protection Program Manager at extension 2-7440.

CRAY NEWS

UNICOS 4.0 IN PRODUCTION

On Monday, October 31, 1988, the Computing and Telecommunications Division (CTD) made UNICOS 4.0 the production version of UNICOS on the ANL Cray X-MP/14. CTD described the major differences between UNICOS 4.0 and the previous production version, UNICOS 3.0, in "UNICOS Libraries Renamed in Preparation for UNICOS 4.0" in the September 1988 *Newsletter* and in "Changes Required by UNICOS 4.0," "NQS Batch Job Scheduling Changes in UNICOS," and "ACQUIRE/FETCH/DISPOSE Default File Format To Change on UNICOS 4.0" in the October 1988 *Newsletter*. All UNICOS users should obtain the updated version of the *UNICOS User Commands Reference Manual* (SR-2011). Information about UNICOS 4.0 will appear in *Guide to UNICOS at ANL* (ANL/TM 460), which should be available by February 1989. UNICOS 4.0 documentation is available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies).

CRAY UNICOS JOB SCHEDULING IMPROVED

In October 1988, the Computing and Telecommunications Division (CTD) changed batch job scheduling in UNICOS to priority-based queues (that is, u, w, x, and y) from shift-based queues (that is, day, night, etc.). Under the new scheduling, jobs in all queues that require no more than one hour of CPU time will be eligible to run anytime. The initial implementation required operator intervention during the prime shift to start low priority (x and y) jobs when the system workload was light. As a result, Cray users began calling computer operators to expedite the release of jobs in the x or y queue.

Now we have improved job scheduling to permit the Cray to start lower priority jobs automatically when no higher priority jobs are waiting. However, a job requiring more than one hour of CPU time will not start during prime shift unless there is no higher priority work and the operator manually starts it.

DS-40 DISK SUBSYSTEM INCREASES STORAGE ON CRAY

The Cray DS-40 disk subsystem began its acceptance test period on Wednesday, November 9, 1988. Barring any major difficulties, we anticipate its acceptance by Friday, December 9, 1988. The Computing and Telecommunications Division (CTD) will then disconnect the DD-49 disks from the Cray X-MP/14 and return them to Cray Research, Inc.

The 20.8 gigabyte storage capacity of the DS-40 disk subsystem allows CTD to provide a six-fold increase in available user disk space in the `/nl` and `/sl` file systems. The additional Cray online disk space will reduce the dependency on the MVS and VAX front-end systems for staging datasets and will permit CTD to review its disk storage charges and policies for files stored on the Cray.

MANAGEMENT INFORMATION SYSTEMS

MANAGEMENT INFORMATION SYSTEMS DEVELOPMENT FUNDING FOR FY1989

The Administrative Data Processing Oversight Committee (ADPO), which advises Laboratory management and provides information to the Computing Policy Committee on administrative computing issues, policies for setting priorities, and funding and schedules for new equipment, new software development, and enhancements for all administrative computing systems, has established priorities for projects that would require total funding of $1,025,200 for FY1989. The indirect budget for FY1989 appears to provide $949,000; however, the ADPO will be asked to assess alternative funding allocations to determine the final list of projects for FY1989.

The Integrated Financial System will absorb almost half the total with $297,600 earmarked for effort, $130,000 for computing, and $20,000 for other expenses associated with the installation of the system (a total of $447,600). Upgrading the Personnel/Payroll package to a new release will cost $45,250 in effort, $60,000 for replacement of the Human Resource System in FY1989, and $22,840 to complete public access in FY1990. The Committee also recommended the expenditure of $47,960 for the Environment, Safety, and Health Exposure/Injury System and $67,320 for its Workplace Monitoring System. Enhancements of the Integrated Medical System will cost $28,770 with $22,840 of effort scheduled for FY1990. The Technical Information Services project will receive $56,000 for effort, $10,000 for computing, and $167,500 for related costs (a total of $233,500). The Integrated Materials Management System project will require $43,600 in effort funding and $51,200 in other expenses.

Additionally, in FY1989, the user departments and divisions will fund the Vehicle Maintenance System, the Security Unusual Incidents System, and all replacements for current systems now obsolete because of changes in hardware and software technologies. The replacement or conversion of these systems represents accordance with the strategies of consolidating data, incorporating personal computing within administrative systems, and limiting technologies. The new systems also will conform to the established policy of purchasing rather than developing software. All of these strategies will move toward greater cost effectiveness and improved user access to data.

The current ADPO Committee members are James O'Kelley, Jr. (Chief Financial Officer), Chairman, Roland Armani (Engineering Physics), Dorothy Bingaman (Energy and Environmental Systems), Bruce Brown (Pulsed Neutron Source), Charles Cheever (Plant Facilities and Services), William Dickson (Human Resources), Elliot Kolsto (Support Services), Martin Kyle (Materials Science), Diane Hale (Computing and Telecommunications), *ex officio,* and David Weber (Computing and Telecommunications), *ex officio.*

FINANCIAL REPORTING WORKING GROUP FORMED

The Financial Applications Committee to Effect Telesis (FACET) has formed the Financial Reporting Working Group (FRWG) to assist the Integrated Financial System (IFS) Project Team in the development of standard financial reports for the Laboratory.

The FRWG is comprised of Duane R. Bradley (representing Plant Facilities and Services), Joanne I. Day (representing the Advanced Photon Source), Susan C. Long (representing Support Services), Pamela J. Styka (representing Energy, Environmental, and Biological Research), Rodney L. Surman (representing the Office of the Chief Financial Officer), Beverly J. Woelfer (representing Engineering Research), and Paul A. Eident (representing Physical Research). Assisting FRWG are IFS Project Team members Donna N. Keto (Computing and Telecommunications), Nick Moore (Computing and Telecommunications), and IFS Project Manager Beverly A. Quinn (Office of the Chief Financial Officer).

FRWG members will contact users of financial reports to gather input on how to improve the current financial reports available through the Financial Management System (FMS) in IFS. Users with suggestions should contact the representative for their Associate Laboratory Director (ALD) or administrative area.

FRWG members will report the progress on this phase of the project at FACET meetings held on the second Tuesday of each month in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m.

INTEGRATED FINANCIAL SYSTEM EDUCATION SCHEDULE ANNOUNCED

In December 1988, the Integrated Financial System (IFS) Project Team will conduct the first class for Laboratory users on how to use the Information Expert (IE) reporting tool to produce financial reports from IFS. This initial class is for members of the Financial Reporting Working Group (see "Financial Reporting Working Group Formed" in this *Newsletter).*

The Computing and Telecommunications Division Management Information Systems will conduct the classes for the Laboratory's financial community in Building 221, Room A-261, on the following dates in 1989:

January 25, 26, and 27
February 22, 23, and 24
March 20, 21, and 22

You must enroll to attend these classes. In December 1988, the Project Team will mail class enrollment forms to all Financial Management System (FMS) users. These forms will also be available at the December 13, 1988, meeting of the Financial Applications Committee to Effect Telesis (FACET) held in Building 202, Room B-169, from 1:30 p.m. to 3:00 p.m. If you are not an FMS user and would like to attend one of these classes, contact Donna Keto at extension 2-7262.

NEW MS-KERMIT COMMANDS AUTOMATE ONSITE LOGIN FOR SNA, CICS, VAX, AND MCAT

The Computing and Telecommunications Division (CTD) has developed new commands for use with MS-Kermit Version 2.31. The commands automate much of the login procedures for the Systems Network Architecture (SNA), the Customer Information Control System (CICS), the VAX cluster, and the Materials CATalog (MCAT) for onsite users.

The commands require an Asynchronous Data Interface (ADI) with the Machine Keyboard Origination (MKO) option. To find out if you have the MKO option, contact your Divisional Telephone Coordinator. The commands are compatible with the Private Branch Exchange (PBX) terminal types 15 (19,200 baud) and 19 (9,600 baud).

Before using one of the commands, tell Kermit what your PBX terminal type is. To find out your PBX terminal type, lift the handset of the phone attached to the ADI and dial #*115. An automated voice will respond with three numbers. The first is your default setting, the second is the setting for data calls outside the Argonne PBX network, and the third is your current setting. If you have no phone attached to your ADI or if you want to change your terminal type permanently, contact your Divisional Telephone Coordinator.

Once you know your terminal type, select the appropriate terminal file for Kermit from Table 1 and inform Kermit of your terminal type by entering (in MS-DOS):

```
COPY TERMxx.INI TERM.DEF
```

where "TERMxx.INI" is the Kermit terminal file. Kermit will remember your terminal type until you change it with the above command.

Table 1: Kermit Terminal Files

Terminal Type	Speed	Kermit Terminal File
15	19,200	TERM15.INI
19	9,600	TERM19.INI

You can issue any of the new commands in Table 2 at the Kermit-MS> prompt.

Table 2: New Kermit Commands

Function	Command
Dial the Hydra Protocol Converter for use with CMS, Wylbur, TSO, or CICS	CALLSNA
Dial the Hydra Protocol Converter for use with CICS	CALLCICS
Dial the Hydra Protocol Converter for use with MCAT	CALLMCAT
Dial the VAX cluster to access the VAX 8700 or the Supercomputer Gateway	CALLVAX

The commands work only with MS-Kermit 2.31 and later versions. CTD will distribute the commands with the MS-Kermit Version 2.31 diskettes, available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy).

ENTREX SCHEDULED FOR DECOMMISSIONING

Data entry services for administrative systems have been available through Entrex hardware and software since 1978. Because the hardware has become increasingly unreliable and expensive to maintain and there is no suitable backup for this critical function, the Office of the Chief Financial Officer is replacing the Entrex system with IBM PS/2 personal computers and Rode/PC software designed for data entry. A 3Com local area network (LAN) links the personal computers that communicate data to the central computers through the Private Branch Exchange (PBX).

The Office of the Chief Financial Officer anticipates complete cutover in the second quarter of this fiscal year, but conversion to the new technology is occurring on a per application basis. Some application systems are already in production. The Office of the Chief Financial Officer has informed the affected administrative areas, which can participate in the testing.

The Computing and Telecommunications Division (CTD) analysts are verifying that the personal computer output is identical to that produced under the old technique. Users of data entry services should see no change in the operation of their systems. For more information, contact Beverly Quinn at extension 2-6845.

PERSONAL COMPUTING

KERMIT VERSION 2.31 AVAILABLE FOR IBM PERSONAL COMPUTERS

A new version of the Kermit file transfer and terminal emulation program is now available for IBM Personal Computers. Some of the changes and enhancements of Kermit 2.31 include:

- The ability to transfer file attribute packets containing size, creation time, and date information to host computers running the PDP-11 and IBM CMS Kermit software. This feature allows Kermit to determine whether enough disk space remains before beginning a file transfer. It also allows for a "Percent Done" display when you are receiving files.
- The ability to create a transaction log containing a two-line description of each file transfer.
- Tektronix 4010 graphics emulation for use with software that generates Tektronix control codes. The emulator allows users to draw characters, lines, and dots. For additional information, see the *Kermit User Guide*. The Hydra Protocol Converter does not yet permit transmission of graphics.
- More descriptive error messages.
- Screen scrolling that works with Microsoft Windows.
- An enhanced script/macro language. Kermit now allows conditional statements in the form of:

```
if [NOT] <condition>  <command>
```

where "condition" is SUCCESS, FAILURE, ERRORLEVEL, or EXISTS and "command" is any Kermit command. Kermit also allows branching by using `GOTO <label>` and `:text`, where "text" is a label.

Kermit Version 2.31 is distributed with keyboard mapping files that work with the Hydra Protocol Converter to emulate a DEC VT100 or VT52. To use Kermit 2.31 with the Hydra Protocol Converter, obtain *Using the Hydra Protocol Converter for IBM Full Screen Terminal Emulation at ANL* (ANL/TM 457, Revision 1).

NOTE: The format of the `SET KEY` command has changed from MS-Kermit 2.29B. The Hydra key files that work with MS-Kermit 2.29B will not work with MS-Kermit 2.31 and vice versa.

Kermit Version 2.31 and the *Kermit User Guide* are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies.)

PLAN TO COORDINATE DBASE IV UPGRADES FOR ANL

In anticipation of a large demand for upgrades for the DBase IV database product for IBM personal computers and compatibles, the Procurement Department and the Computing and Telecommunications Division are making arrangements for an onsite upgrade. While the details are still being worked out, the plan is to contract with a locally approved distributor to come to Argonne on a specified day to process all requests for upgrades. Look for details soon in *Argonne Week* and local bulletin boards. In the meantime, DBase III Plus users should locate their original diskettes with the serial numbers for the upgrade.

TELECOMMUNICATIONS NEWS

NEW MICROWAVE SYSTEM BETWEEN ANL AND FNAL SCHEDULED FOR INSTALLATION IN JANUARY 1989

In January 1989, The Computing and Telecommunications Division (CTD) will install a new digital microwave system between Argonne National Laboratory (ANL) and Fermi National Accelerator Laboratory (FNAL).

The Motorola microwave currently in service is 15 years old, is unreliable, and will not handle the higher transmission speeds and digital interfaces required with modern computer systems. The contributors who fund this project include ESnet (under the direction of NMFECC), FNAL, and the following Argonne divisions: APS, CHM, CTD, HEP, and PHY. CTD will install International Microwave Corporation modern digital equipment that will use the existing parabolic antennae and passive reflectors and will operate on the same frequencies allocated to the current Motorola microwave. The new microwave system will have the capacity to allow four T1 (1.544 megabits per second) channels. Initially, CTD will use two of the T1 channels and will reserve the two remaining channels for future use.

The new microwave system will provide enhanced network access capabilities for the participating organizations and Argonne. High Energy Physics will get high speed data transfer capability for their current experiments on the collider detector equipment at FNAL. The Argonne Laboratory-wide DECnet will get high speed data communications to the High Energy Physics network through the FNAL HEPnet node. FNAL will get high speed data communications to the Magnetic Fusion Energy network through the Argonne MFEnet node. In the future, the new microwave system will allow the Advanced Photon Source to service its national user community through networks like the High Energy Physics network. FNAL users will get higher speed NJE access to the ANL central IBM computers. The system will also provide the capability for a future TCP/IP link between ANL and FNAL and thus provide FNAL access to the Chicago hub universities (University of Illinois at Chicago, Northwestern, University of Chicago, University of Notre Dame, and the Illlinois Institute of Technology).

CTD will connect one of the microwave T1 channels to new T1 multiplexers supplied by Datatel. One T1 multiplexer will be at ANL; one will be at FNAL. When connected to the microwave system, the multiplexers will allow eight high speed data channels and six voice channels. At the time of installation, CTD will move and upgrade all existing services to the Datatel T1 multiplexers, including the Magnetic Fusion Energy network (MFEnet) to 56 kilobits per second, the High Energy Physics network (HEPnet) to 56 kilobits per second, and the IBM Network Job Entry (NJE) to 56 kilobits per second.

During spring 1989, the new microwave system will provide new voice and asynchronous terminal services between Argonne and FNAL. Six voice channels will connect the Argonne Private Branch Exchange (PBX) to the FNAL Centrex system. Voice users dialing between Argonne and FNAL will automatically use the new microwave system for their calls. Once the new voice service is operational, CTD will discontinue the existing six Illinois Bell Telephone tie lines. Likewise, asynchronous terminal multiplexers at Argonne and FNAL will connect to one of the high speed data channels provided by the Datatel T1 multiplexers. Eight asynchronous channels (four in each direction) will provide a new asynchronous terminal capability for Argonne and FNAL users. An Argonne user will be able to dial a local PBX number and get connected directly to a FNAL data switch at up to 19,200 bits per second. The Argonne user can then type the machine identification for the destination host. A FNAL user will dial a local Centrex number to connect to a machine keyboard origination port of the Argonne PBX at up to 19,200 bits per second. The FNAL user can then dial the number of the destination Argonne host.

The DOE Office of Energy Research (OER) through ESnet is purchasing one T1 channel on the new microwave to provide ESnet between ANL and FNAL (see "Plans To Upgrade to MFEnet II" in the September 1988 *Newsletter).* Initially, FNAL will connect to MFEnet II through the microwave T1 channel.

TYMUSA TYMNET INTERNATIONAL SERVICE

The Computing and Telecommunications Division (CTD) is offering a new Tymnet service, TYMUSA, that allows Argonne users and collaborators to connect to Argonne computers from twenty-seven international locations. TYMUSA allows terminal connections at 300 bps, 1200 bps, or 2400 bps, depending on the international locations. The international locations serviced by TYMUSA are:

Antigua
Argentina
Bahamas
Bahrain
Barbados
Belgium
Bermuda
Cayman Islands
Colombia
Dominican Republic
Egypt
France
Greece
Guatemala
Honduras
Israel
Jamaica
Netherlands
Panama
Peru
Philippines
Saudi Arabia
Switzerland
Taiwan
Thailand
U.S. Virgin Islands
West Germany

Account Services (Building 221, Room A-147, extension 2-5425) handles the TYMUSA enrollment and gives enrollees logon information and telephone numbers for the desired location. TYMUSA usage is $16 per hour for Argonne users. To become familiar with Tymnet, refer to *How To Use Tymnet,* available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting a copy). Users traveling to an international location serviced by TYMUSA should enroll two weeks before the service is necessary.

NCSA TELNET PROGRAM AVAILABLE FOR IBM PERSONAL COMPUTERS

The Computing and Telecommunications Division (CTD) is distributing the public domain NCSA Telnet program from the National Center for Supercomputing Applications (NCSA) at the University of Illinois. NCSA Telnet provides IBM Personal Computers interactive access and file transfer capabilities over the Laboratory-wide Ethernet by using the Transmission Control Protocol/Internet Protocol (TCP/IP). The NCSA Telnet program emulates a VT102 terminal and provides several special capabilities, including Tektronix 4010 emulation, a file transfer protocol (FTP) server, and simultaneous sessions on up to 20 host computers (depending on the memory available in your personal computer).

You can use the NCSA Telnet program at ANL to conduct sessions on the Cray X-MP/14, the central VAX 8700, the VAX-11/750 MFEnet gateway, the divisional Sun and Ridge workstations, and any of the parallel computers in the Advanced Computing Research Facility (ACRF). While you can use NCSA Telnet to access the IBM system, CTD is working to resolve minor difficulties with IBM 3270 terminal emulation; occasionally, the screen is not completely updated. Also, we recommend you use a program (such as SuperKey or DESQview) to redefine key sequences to make use of program function keys. For assistance, call the User Services consultant at extension 2-5405.

NCSA Telnet Version 2.2 is available for IBM PC-XT, IBM PC-AT, or compatible computers and IBM PS/2 computers. The IBM version of NCSA Telnet requires PC-DOS or MS-DOS 2.0 or later, a minimum of 384K random-access memory (RAM), a 3Com Corporation 3C501 or 3C523 Etherlink adapter board, and an Ethernet connection. The Ethernet connection will have to be on a local area network cable that is in turn connected to the Laboratory-wide Ethernet to access Laboratory resources in CTD and the ACRF.

Diskettes for the IBM version of NCSA Telnet and the *NCSA Telnet for the PC Reference Guide* are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting them). Before you can use your NCSA Telnet diskette, you must obtain your own unique Ethernet address from the Computer Network Section (extension 2-7236). Attempting to connect to the network without doing so may result in disruptions for other TCP/IP network users.

NCSA TELNET AND TN3270 AVAILABLE FOR APPLE MACINTOSH PERSONAL COMPUTERS

The Computing and Telecommunications Division (CTD) is distributing two public domain programs that provide Ethernet capabilities to users of Apple Macintosh personal computers. The NCSA Telnet program from the National Center for Supercomputing Applications (NCSA) at the University of Illinois provides interactive access and file transfer capabilities by using the Transmission Control Protocol/Internet Protocol (TCP/IP).

NCSA Telnet also emulates a VT102 terminal and provides several special capabilities, including Tektronix 4010 emulation, a file transfer protocol (FTP) server, and simultaneous sessions on up to 20 host computers.

The tn3270 program for the Apple Macintosh personal computer provides IBM 3270 terminal emulation for use with Argonne's Conversational Monitor System (CMS), Wylbur system, and Customer Information Control System (CICS). The Computing and Information Services at Brown University developed the tn3270 program for the Apple Macintosh by adapting the Telnet program developed by NCSA.

You can use the NCSA Telnet program at ANL to conduct sessions on the Cray X-MP/14, the central VAX 8700, the VAX-11/750 MFEnet gateway, the divisional Sun and Ridge workstations, and any of the parallel computers in the Advanced Computing Research Facility. For terminal emulation with the central IBM systems, tn3270 works better than NCSA Telnet. The advantages of the tn3270 program include faster transmission speed (compared to MacKermit) for terminal emulation and file transfer, type ahead capabilities, mouse positioning for the cursor, and a pull-down menu of program function keys and other special purpose IBM 3270 functions.

NCSA Telnet Version 2.2 and tn3270 works with the range of Apple Macintosh configurations from the Apple Macintosh 512K to the Apple Macintosh II. While NCSA Telnet works with several communications options, CTD has experience with the Kinetics FastPath bridge that connects an AppleTalk local area network to the Laboratory-wide TCP/IP local area network. We also have experience with the Etherlink NB direct Ethernet connection for the Apple Macintosh II. CTD does not provide a Kinetics FastPath Ethernet bridge for general use. CTD is working to improve the reliability of the Kinetics bridge. Users considering the purchase of a Kinetics bridge should consult with CTD. CTD will assist divisions in acquiring and installing the Kinetics bridge. For information, call the Computer Network Section at extension 2-5432.

CTD distributes both NCSA Telnet and tn3270 for the Apple Macintosh on a single diskette. The diskette, *NCSA Telnet for the Macintosh Reference Guide,* and *tn3270 for the Macintosh Reference Guide* are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies). Before you can use your NCSA Telnet and tn3270 diskette, you must obtain your own unique Internet address from the Computer Network Section (extension 2-7236). Attempting to connect to the network without doing so may result in disruptions for other TCP/IP network users.

NEW ADDITIONS TO BITNET UNIVERSITY NETWORK

The BITnet University Network enhances collaborative efforts between Argonne scientists and scientists at universities and other organizations. You can use electronic mail through BITnet to share programs, data, and other information with other BITnet users.

Currently, the BITnet network comprises over 2,490 computers at over 880 sites. Since the last *Newsletter* article in October 1988, the following universities and organizations have joined BITnet:

Allegheny College
American Institute of Physics Publishing Center--Woodbury, NY
Bowling Green State University--Ohio
Citadel Military College of South Carolina
Economic Commission for Latin America and the Caribbean--Santiago
ENR--Petten
Geological Survey Institute--Israel
German Aerospace Research (DFVLR)--Lampoldshausen
Hanyang University--Seoul
Jersey City State College
Keio University
Laboratory of Molecular Interactions and Dynamics--Paris
Maycomb Community College--Warren, MI
National Museum of Ethology--Japan
National Research Center (CNR)--Bologna
Norwich University
Oakland Community College--Bloomfield Heights, MI
Observatory Midi-Pyrenees--Toulouse
Radford University
Research Institute for Scientific Applications (FAW)--Ulm
Saint Lawrence University
Saint Peter's College
Shriners Hospital--Portland, OR
Trenton State College
University of Perpignan
University of Quebec
University of Venice
University of Winnipeg

Western Washington University
Yonsei University--Seoul
Youngstown State University

For a complete list of organizations in the BITnet network and their nodenames, enter (in CMS, the VAX 8700, or MVS Wylbur):

```
HELP BITNET NODES
```

BITS & BYTES

V/SPELL SPELLING VERIFICATION PROGRAM IN CMS TO BE DISCONTINUED

Because of low usage, the Computing and Telecommunications Division (CTD) does not plan to renew the license for the V/Spell spelling verification program in CMS that expires at the end of December 1988. Affected users should call the User Services consultant at extension 2-5405.

RECENTLY UPDATED AND PUBLISHED DOCUMENTS

The Computing and Telecommunications Division (CTD) periodically publishes manuals, reports, and other documents to reflect changes in computing at Argonne. We also stock many vendor manuals for user convenience. The following new or recently revised documents are available at the Document Distribution Counter (Building 221, Room A-134) or through the mail (by calling extension 2-5405 and requesting copies):

Computing and Telecommunications Documents

A Survey of ANL Organization Plans for Word Processors, Personal Computers, Workstations, and Associated Software (ANL/TM 459, Revision 1) supplements information in both the *ANL Statement of Site Strategy for Computing Workstations* (ANL/TM 458) and the *ANL Site Response for the DOE Information Technology Resources Long-Range Plan* (ANL/TM 449). This *Survey* documents each organization's plans for office automation, identifies appropriate planners and other contact people in those organizations, and promotes the sharing of this information among those people making plans for organizations and decisions about office automation. This document supersedes the first *Survey* (ANL/TM 459).

Cray Research, Inc. Documents

The *UNICOS Tape Subsystem User's Guide* (SG-2051) describes the characteristics and capabilities of the UNICOS tape subsystem, which was developed for use with Cray Y-MP, Cray X-MP, and Cray-1 computer systems that have an I/O Subsystem (IOS) or with Cray-2 computer systems that have a Cray-2 Tape Controller (CTC). The *Guide* explains how to work with the tape subsystem and provides many examples of commonly used commands. It also incorporates the new features of the UNICOS 4.0 release running on Cray computer systems. The *Guide* assumes that readers have a working knowledge of either the Cray operating system UNICOS or the UNIX operating system.

The *TCP/IP Network User's Guide* (SG-2009 C) describes the network communication capabilities available when using the Transmission Control Protocol/Internet Protocol (TCP/IP) on Cray computing systems running the Cray operating system UNICOS. The *Guide* covers the TCP/IP utilities that are available to users and incorporates the new features of the UNICOS 4.0 release running on Cray computer systems. The *Guide* assumes that the reader is familiar with a Unix or Unix-like environment such as UNICOS but does not assume that you are familiar with TCP/IP or other networking products.

The *UNICOS Text Editors Primer* (SG-2050) provides introductory information on the *ed, vi,* and *ex* text editors running on Cray computer systems with the Cray operating system UNICOS. If you have never used these editors, the *Primer* will familiarize you with them by presenting commonly used commands. In addition, examples and exercises will help you understand how to use commands. If you are an experienced user of *ed, ex,* or *vi,* you can use the command summaries to locate specific information quickly. This primer is not a comprehensive description of the UNICOS text editors.

IBM Documents

The *IBM Federal Government Price List* includes prices for hardware, software, and maintenance for the entire IBM personal computer product line (PS/2 and RT). These prices are applied to Argonne purchase orders, which reference the appropriate GSA contract number.

Other Vendor Documents

NCSA Telnet for the PC Version 2.2 (UD-99 US-14) describes how to use the National Center for Supercomputing Applications (NCSA) Telnet Version 2.2 on an IBM Personal Computer or compatible to access Telnet hosts on TCP/IP networks. This manual is organized into six chapters and three appendices. Chapter 1, "Starting and Quitting NCSA Telnet," describes how to start NCSA Telnet and how to open and close a connection between your personal computer and one remote host. Chapter 2, "Introduction to Managing Sessions," introduces NCSA Telnet's capability for multiple connections. Chapter 3, "More About Managing Sessions," discusses multiple sessions in detail. Chapter 4, "File Transfer," outlines procedures for transferring files between a personal computer and a Telnet host. Chapter 5, "Tektronix 4014 Emulation," discusses NCSA Telnet's ability to emulate a Tektronix 4014 graphics terminal. Chapter 6, "Installation and Configuration," contains information for system administrators (and other experienced users) to use when installing and customizing a system. The three appendices describe NCSA Telnet's error messages, commands available from the personal computer keyboard, and keywords for configuration file parameters.

NCSA Telnet for the Macintosh Version 2.2 (UD-98 US-13) describes how to use NCSA Telnet for the Apple Macintosh Version 2.2 on an Apple Macintosh to access Telnet hosts on TCP/IP networks. This manual is organized into six chapters and three appendices. Chapter 1, "Starting and Quitting NCSA Telnet," describes how to start the program, open a connection with a remote host, and quit the program. Chapter 2, "Special Keyboard Usage," explains how to use the Apple Macintosh keyboard with NCSA Telnet. Chapter 3, "Advanced Features," discusses saving sets, changing configurations, selecting user preferences, and the Session and Network menu options. Chapter 4, "File Transfer," explains how to transfer files between an Apple Macintosh and any file transfer protocol (FTP) host on the network. Chapter 5, "Tektronix 4014 Emulation," describes how to use the graphics capabilities of NCSA Telnet. Chapter 6, "System Administrator Information," contains information for experienced users on installing and customizing a system. The three appendices cover NCSA Telnet's error conditions, the program's various menus, and information for converting host files to NCSA Telnet's configuration file format.

The *tn3270 for the Macintosh Reference Guide Version 2.0* (tn3270) explains how to use tn3270 for the Apple Macintosh computer with a TCP/IP network connection to emulate an IBM 3270 terminal. Features of the emulation include extended highlighting, APL, and 3179-compatible graphics. For an Apple Macintosh II or other Apple Macintosh with a large screen, the emulation program accommodates different screen formats. In IBM VM/SP, tn3270 acts as an FTP server for file transfer and maintains file transfer as part of a terminal session. Although tn3270 is primarily a 3270 emulation program, it also accommodates line mode Telnet connections. This feature allows tn3270 to operate with hosts that establish a line mode connection before entering 3270 mode as well as line mode only hosts. When operating in line mode, tn3270 emulates a DEC VT52 terminal.

Learning DOS--Interactive Guide to the PC Operating System (00102) is a software package that includes a course disk and a handbook on disk operating system (DOS) concepts and commands. The *Guide* includes a "Quick Reference" for ongoing help as you use DOS and a "Tips" section that contains general guidelines for using DOS and sample batch files for a more efficient system. "Learning DOS Lessons" introduces the basics of effective computer use and features brief explanations, helpful diagrams, and guided practice sessions.

CUMULATIVE SUBJECT INDEX

Each December we publish the cumulative index from previous years's *Newsletters*. Other monthly issues include an index only for the current calendar year.

CMS and VAX users may search the entire *Newsletter* index online for a particular *Newsletter* topic by entering:

```
LOOKUP topic
```

where "topic" is the name of the topic (one or more words) for which you need information. LOOKUP will return a file to the VAX user's "READER" subdirectory. The filename will be "LOOKUP.topic" and can be either "TYPEd" to your terminal or sent to a printer.

Wylbur users may use LOOKUP by entering

```
DO LOOKUP
```

and responding to the prompt for a topic. After the system has sent the information to your fetch queue, enter:

```
FETCH topic
```

Then enter:

```
LIST
```

The system will list the page numbers for every index entry containing the topic name.

For more information, enter:

```
HELP LOOKUP
```

USERS GROUP HIGHLIGHTS

MINUTES OF COMPUTER USERS GROUP MEETING HELD NOVEMBER 1, 1988

The chairman, Dotti Bingaman (Energy and Environmental Systems), opened the meeting at 3:05 p.m.

Computing and Telecommunications Reorganization. Dave Weber (Computing and Telecommunications) discussed plans for the reorganization of the Computing and Telecommunications Division (CTD). Recent changes have enhanced the ability of CTD and the Laboratory to respond to new efforts in advanced scientific computing. These changes include forming the division under Dr. F. Y. Fradin (Associate Laboratory Director for Physical Research), expanding the mission of the division to include some scientific research, and emphasizing the application of massive parallel computing.

Dave has reorganized the division into three key areas: Scientific Applications and Research, Computing and Telecommunications Operations, and Management Information Systems. Scientific Applications and Research is responsible for the development of programmatic opportunities by using state-of-the-art computing and telecommunications capabilities. Computing and Telecommunications Operations is responsible for operating the Laboratory's central computers and the data and voice telecommunications systems. Management Information Systems (headed by Diane Hale) is responsible for information and production systems.

Computer Protection Update. Jean Troyer (Computing and Telecommunications) discussed current efforts in computer protection requirements. Jean held a workshop for computer protection representatives; four summary plans are under review. (See "ANL Provides Computer Protection Plans To Comply with Computer Security and Privacy Act of 1987" in this *Newsletter.)*

From November 14 through 23, 1988, The Department of Energy Chicago Operations Office (DOE-CH) will inspect the Laboratory's compliance with DOE Order 1360.2A. (Since this meeting, DOE-CH has postponed this inspection until late January 1989. See "Inspection of Areas for ANL Compliance with DOE Order 1360.2A in this *Newsletter.)*

Jean also discussed the new reporting requirements for computer security incidents. (See Incident Reporting Procedures Approved by the Computing Policy Committee" in this *Newsletter.)*

IBM Replacement Task Force Report. Jerry Davison (Computing and Telecommunications) discussed the recommendations of the Task Force assigned with defining the current and future requirements for IBM-type central computing resources and recommending a replacement plan for the IBM 3033 computers. (See "Task Force Recommends Replacing IBM 3033 Computers" in the November 1988 *Newsletter.)*

UNICOS 4.0 Status. Joe Midlock (Computing and Telecommunications) discussed the current state of UNICOS on the Cray. On October 31, 1988, CTD placed UNICOS 4.0.5 in production. CTD changed the coding for the TLEFT routine to work under UNICOS 4. Because UNICOS 4.0 has adopted a more standard file format, CTD has removed the /pp file directory and moved the program products to the /usr/lib directory. Anyone experiencing difficulties should contact the User Services consultant at extension 2-5405. (See "UNICOS 4.0 in Production" in this *Newsletter.)*

The DS-40 disk subsystem has arrived. The Cray customer engineers will install and test the equipment during the next few weeks. (See "Schedule for Installing New DS-40 Disk Subsystem" in the November 1988 *Newsletter.)* The x and y queues have to be turned on manually even when no u or w jobs are in the system. CTD and the Cray analysts are investigating an automated way of turning on the x and y queues. (See "Cray UNICOS Job Scheduling Improved" in this *Newsletter.)*

Delay in Installation of VAX/VMS 5.0. Rich Raffenetti (Computing and Telecommunications) outlined the benefits of the VAX/VMS 5.0 operating system and the reasons for its delayed implementation. The new system has a cluster management utility that allows the use of activity licenses, the EVE editor (full screen EDT editing), multiple processor capabilities, multiple DECnet proxies, and a mixed local area VAX cluster. (See "Central VAX Cluster Upgrade to VMS 5.0 Deferred" in the November 1988 *Newsletter.)*

Several other upgrades have occurred on the cluster. There are now PostScript printer channels, new batch queues, special queues for large resource jobs, Network Job Entry (NJE) 5.0 software, a WYLVAX editor, and an Emacs editor. Now you can convert ANSYS and SAS graphs to ANL graphics and send them to any of the local graphics devices. Future work will include Disspla 11, SAS 5.18, CERNLIB, a TeX previewer, a central library system, disk acquisitions to double the current capacity, reserved disk space, VMS Cray Station 4.01, and the new Magnetic Fusion Energy (MFE) II network software.

Computing and Telecommunications New Acquisition Plans. John Volmer (Computing and Telecommunications) outlined CTD's plans for new equipment. CTD will acquire two IBM 3880 controllers and eight IBM 3380 disks in response to the IBM replacement Task Force recommendations. (See "Computing and Telecommunications Division Initiates Disk Acquisition" in the November 1988 *Newsletter.)* This equipment will be available around February 1989.

Over the next 18 months, CTD will gradually introduce the new IBM 3480-type tape drive system. (See "Computing and Telecommunications Division Plans IBM 3480-Type Tape Drive Acquisition" in the November 1988 *Newsletter.)*

What's Changing in Networks at Argonne. Larry Amiot (Computing and Telecommunications) discussed the current capabilities and plans for networking at Argonne. The networks currently available are the Laboratory-wide Network Job Entry (NJE), personal computer local area networks, the Laboratory-wide Digital Equipment Corporation network (DECnet), and the Transmission Control Protocol/Internet Protocol (TCP/IP) network. External connections are available to the National Science Foundation network (NSFnet), the MILnet network, the Magnetic Fusion Energy network (MFEnet), the BITnet network, and the High Energy Physics network (HEPnet). Under development are connections to the Energy Sciences network (ESnet), TCP/IP for VM, the TCP/IP name service, the Chicago Hub T1 TCP/IP and DECnet link, an ANL East/West Ethernet bridge, the replacement of the ANL/FNAL microwave, a microwave link to MCI, and control of the Laboratory-wide network.

Computing Policy Committee Meeting Report. Dotti Bingaman (Energy and Environmental Systems) reported on the Committee meeting held on October 11, 1988. Jean Troyer (Computing and Telecommunications) spoke about policy issues related to (1) the implications of DOE Regulation 1360.2A, (2) the Computer Security and Privacy Act of 1987, and(3) the Computer Incident Reporting Procedure. Members of the Computing Policy Committee (CPC) will review the draft Computer Incident Reporting Procedure and send comments to Jean Troyer (see "Computer Protection Update" in these minutes). Dave Weber (Computing and Telecommunications) reviewed past CPC activities defining general benefit functions within the computing center that should be funded by Laboratory indirect funds and should not be included in the computing rates. This year Laboratory management has asked CTD to cut $200,000 in funding for these general benefit functions. The CPC expressed concern over this cut and recommended to Laboratory management that the funding be restored; however, if the funding cannot be restored, then CTD management should be allowed to decide how to allocate the $200,000 cut over its entire budget. John Volmer (CTD) discussed the recommendations of the Task Force for replacing the IBM 3033 Computers. (See "Task Force Recommends Replacing IBM 3033 Computers in the November 1988 *Newsletter).* Also, Larry Price (High Energy Physics) reported on the Networking Subcommittee meeting.

The meeting adjourned at 4:43 p.m.

Ken Miles, CUG Secretary

MINUTES OF MACINTOSH USERS GROUP MEETING HELD NOVEMBER 9, 1988

Bob Kampwirth (Materials Science) opened the meeting at 11:05 a.m.

The SCORES virus struck the Materials and Components Technology (MCT) Apple Macintoshes this week. Some disks were damaged, and the machines could not be rebooted. Caution is advised, especially when trading software or downloading from networks. MCT has not located the source of the virus yet.

Gene Rackow (Mathematics and Computer Science) reported that the ARPAnet Unix virus did not infiltrate the Laboratory because we use an altered version of the mail program (the virus got into systems with SENDMAIL). The Laboratory asked computer protection representatives and system administrators to check for infiltration; everything should be back to normal by now. Viruses on all types of systems are becoming a more serious and time-consuming difficulty.

The Laboratory will have four NeXT machines, possibly by mid-December 1988. We will be a beta site. Gene Rackow will demonstrate the machines sometime in the future.

Bruce Corsaro (Odesta) and John Walker (Odesta) demonstrated DataDesk Professional, a data analysis program. It can take data from any ASCII file and work the data with statistical analysis functions. It contains a built-in Double Helix file utility to import files. It analyzes data with a variety of graphs and charts (pie, bar, scatter, etc.) that the user can manipulate interactively (regressions, correlations, etc.). The selection of a set of data in one graphic will carry over to other graphics in open windows. A query tool causes a selected data item's data to pop up. A hyperview menu presents alternative data analyses choices for each graphic. The program will create 3-D graphs and rotate them interactively in any direction. There is limited ability to augment graphics, but the program will output a PICT file to put into a drawing program for that purpose.

A user can create his own variables. For derived variables, the program stores the math functions that operate on the original variable rather than the derived variable, because this storage takes less memory. It can handle 32,000 cases and 500 variables and will run on a 512K Apple Macintosh (though a larger machine is recommended). At the present time, it runs in black and white only.

Bruce and John also demonstrated GeoQuery, a geographic interface to data. It contains information on the location of standard U.S. zip codes on a U.S. map. It will read an ASCII file for zip codes and will report invalid zip codes. The program can give the distance in miles from any two points on the map and contains cities with populations greater than 50,000. It will group states, delete unwanted states, and blow up the remaining image.

The Programmers Special Interest Group normally meets the first Wednesday of each month at 11:00 a.m. in Building 221, Room C-201. Call John Mattson (Materials Science) at extension 2-5535 for details.

The Excel Special Interest Group normally meets the fourth Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. There will be no meeting in November 1988 or December 1988. At the January 1989 meeting, the use of Excel for a major chemical-processing model will be discussed. Call Ralph Leonard (Chemical Technology) at extension 2-3229 for details.

The Macintosh Users Group meets the second Wednesday of each month at 11:00 a.m. in Building 221, Room A-216. Contact Bob Kampwirth (Materials Science), Ron Shepard (Chemistry), Ray Carlson (Computing and Telecommunications), Lee Wagar (Graphic Arts), Jim Lewellen (Computing and Telecommunications), or Ralph Leonard (Chemical Technology) for further meeting information.

The meeting adjourned at 12:15 p.m.

Lee Wagar, Acting Macintosh Users Group Secretary

MINUTES OF GRAPHIC ARTS USERS GROUP MEETING HELD NOVEMBER 11, 1988

Chairperson Bryan Schmidt (Energy and Environmental Systems) opened the meeting at 12:15 p.m.

Rich Nixon (Graphic Arts) began the meeting by passing out copies of the *Graphic Arts Unit Pricing Guide,* which shows FY1989 costs for many of the services offered by Graphic Arts. The prices seem to be competitive with other photo labs in the area. They include costs for normal quality control and customer service effort. (Special cases requiring an unusual amount of effort may cost more.) Some of the photographic items listed include black-and-white and color negatives, proof sheets, prints, viewgraphs, halftones, slides, and film processing; Ilford prints and viewgraphs; platemaking (in cost per burn); PMT film, prints, and halftones; colorkeys; and silver prints. These items are priced per individual copy (unit). Costs for printing are shown in price per thousand images produced. The rate changes, depending on the quantity of copies needed per original; the number of originals does not affect the rate. If less than

125 copies per original are necessary, the job is normally sent to the Quick Copy Center in Building 201. If the copies need to be of better quality, then Graphic Arts can determine an hourly rate for printing. All printing prices are based on the use of standard paper stock and ink, paper plates, and production units (that is, an image that is 8.5-by-11 inches or smaller equals one production unit). Costs for finishing operations (such as cutting, folding, drilling, and collating) are shown in price per thousand sheets produced. The rate changes, depending on the total number of sheets that are produced. Binding costs (also shown in price per thousand sheets) are specified separately: saddle stitching includes trimming and collating costs; perfect binding, stitch and tape, and GBC binding (which are done by hand) do not include collating but do include trimming costs. Jobs that are still charged on the hourly rate include work done by the design group, field photography, hand binding, the small printing jobs described above, and any other items not listed in the *Guide*. Copies of the *Guide* are available by calling Rich Nixon (extension 2-5600); Graphic Arts is working on a more detailed version that will explain some of the finer points.

Joe Paulini (Graphic Arts Customer Service Supervisor as of November 1, 1988) continued the meeting with a report on the status of the sitewide copiers. In the first month, the Laboratory has saved more than $30,000 by using these machines. Over 2 million copies were made on 100 copiers (the total number onsite is 140). Service calls have averaged about three to four per day, with a half-hour being the usual response time. Joe mentioned that there have been complaints about paper jamming on the large Konica 7090RS models. Many jams were a result of a defective plate in the lower tray; Konica representatives have been replacing these Konica 7090RS models with Konica 7090S models. They are also fine tuning or repairing feeders; in many cases, the copiers were set up faster than the six-hour installation time normally required to ensure optimal operation. Joe expects these difficulties to be resolved within the next few weeks. Joe would also appreciate calls from users who are having difficulties. Konica will upgrade or downgrade machines to improve efficiency. Konica is obligated under contract to provide machines that work. But Joe does need to hear from users about these difficulties before anything can be done. Call Joe at extension 2-8162 or contact him through Lee Wagar's electronic mail address (B20429 at ANLVM) with the model number, location, and a description of the difficulty.

The Quick Copy Center in Building 201 is now leasing an engineering drawing copier. It can provide output on paper, vellum, or film. The maximum size of the original it can copy is 36 inches by any manageable length. It cannot reduce or enlarge. If you have larger originals, call Graphic Arts.

The Computing and Telecommunications Division (CTD) and Graphic Arts are working together on making high-quality graphics output as accessible as possible to users of personal computers and small computers as well as to users of the mainframe computers. Fred Moszur (Computing and Telecommunications) gave an update on these activities and an overview of the computer graphics capabilities at the Laboratory. Fred mentioned that the equipment available for high-quality printing of computer-generated output includes the CalComp 5335 color plotter and Matrix camera in CTD (for 35mm slides or 8-by-10 inch transparencies), Apple LaserWriters (available throughout the Laboratory), and the Linotype L300P typesetter in Graphic Arts. (The Apple LaserWriters and the Linotype L300P typesetter print PostScript files).

Fred stated that scientists and engineers who create their text, charts, graphics, etc. on either the Cray with Disspla or the VAX or IBM with Tellagraf or Disspla have the capability now to get high-quality output with the central graphics equipment. However, many people at the Laboratory are working on small computers (for example, the Apple Macintosh, the IBM Personal Computer, and the Sun workstations, which do not yet have convenient access to centrally available graphics equipment). The graphics programs used on the IBM Personal Computer (such as SuperImage, Harvard Graphics, and Pixie) create a Computer Graphics Metafile (CGM), which is a file that can be sent to another computer to recreate the original image (analogous to PostScript for text files). CTD's most recent efforts have enabled graphics generated on IBM Personal Computers to be displayed on the central graphics equipment. It is not clear that vendors of graphics software for the Apple Macintosh packages will incorporate the CGM capability. If they do, we may be better able to take advantage of central resources. CTD is working on this area. CTD is also working on simplifying the process of transferring print files from Sun workstations to the available network printers.

The trend in the last 6 to 12 months at many national laboratories (including Argonne) has been that more individual engineers and scientists (as well as publication departments) are creating graphics with Apple Macintoshes. Software packages include MacDraw, MacPaint, Adobe Illustrator, and Cricket Draw. Ease of use and art work capabilities contribute to the popularity of the Apple Macintosh. However, at many sites, Apple Macintosh users cannot yet conveniently use available network printers or central graphics devices. At ANL, while you can bring Apple Macintosh diskettes to Graphic Arts for output on the typesetter, centrally available color graphics equipment is unavailable.

Fred also brought up some of the other programs that use graphics. ANSYS (a structural analysis program on the VAX) can create a CGM file for central graphics equipment. The Statistical Analysis System (SAS), which runs on VAX and IBM, can also use such equipment. There is no metafile capability for Speakeasy (a scientific programming language). The Autocad program that runs on the IBM Personal Computer creates graphics images that with the appropriate translations can be integrated into the network.

Fred talked about merging graphics and text. Users can merge PostScript files with very good results. However, because users do not see the image but only the commands to create the image, extra work usually is necessary to make sure the image gets positioned correctly. Most users who use this capability are technical computer personnel; more work to simplify the process is necessary before it will be widely used.

Another area of discussion was on how to transfer files in the other direction. For example, can graphics created on the VAX with Tellagraf be transferred to a personal computer to be refined or manipulated by the user later? Personal computers with programs to emulate graphics terminals (such as a Tektronix 4014 terminal) can capture graphics from Disspla, Tellagraf, ANSYS, and SAS programs. However, the resolution may not be suitable for inclusion in a publication, and the image size may need to be scaled down. Merging text and graphics is a common capability on an Apple Macintosh. On an IBM Personal Computer, you need to make sure that you can create a graphics image in the format required by your word processing package. Fred could not comment on end-user applications on Sun workstations.

A common difficulty faced by personal computer users is that although they can create graphics that look great on the screen, they cannot or do not know how to transfer the files to a network so they can get high-quality output. The challenge is to make this process as easy as producing output with an attached printer. For now, CTD recommends using the IBM Personal Computer with SuperImage software.

The next Graphic Arts Users Group meeting will be held on Friday, December 9, 1988, at noon in Building 201, Room 274.

Marita Moniger, Graphic Arts Users Group Secretary

WORKLOAD STATISTICS (OCTOBER 1 THROUGH OCTOBER 30, 1988)

NUMBER OF ENROLLED USERS

	BEGINNING OF MONTH	END OF MONTH	ACTIVE DURING MONTH
CMS	1,348	1,331	523
Wylbur	1,616	1,614	454
MVS TSO	54	54	9
CICS	1,616	1,614	63
MVS Batch	2,023	2,021	712
VAX/VMS	367	411	196
Cray	300	305	109
All Systems	2,023	2,021	982

INTERACTIVE AND BATCH USE

	NUMBER OF SESSIONS OR JOBS RUN				SESSION	CPU
	PRIME	NIGHT	WEEKEND	TOTAL	TIME (HRS)	TIME (HRS)
INTERACTIVE						
CMS	11,936	2,287	1,683	15,906	32,490.5	89.63
Wylbur	9,474	405	634	10,513	9,115.6	10.04
MVS TSO	30	0	0	30	23.3	0.01
CICS	21	0	0	21	0.0	0.85
VAX/VMS	7,171	517	730	8,418	9,493.9	42.26
Cray	79	4	26	109	595.8	0.36
IBM BATCH						
Class U	9,077	1,980	1,288	12,345	n.a.	34.14
Class W	18,897	2,361	1,506	22,764	n.a.	208.52
Class X	2	1,285	42	1,329	n.a.	63.39
Class Y	0	0	398	398	n.a.	48.92
Class Z	0	0	14	14	n.a.	0.51
Nonmain	12,437	1,342	1,053	14,832	n.a.	0.00
Total	40,413	6,968	4,301	51,682	n.a.	355.48
CRAY BATCH						
u	79	4	26	109	n.a.	0.36
w	3,472	271	189	3,932	n.a.	80.00
x	613	192	81	886	n.a.	54.97
y	259	258	341	857	n.a.	157.93
Total	4,423	725	637	5,784	n.a.	293.26
VMS BATCH						
W_BATCH	981	187	137	1,305	n.a.	34.96
X_BATCH	9	68	13	90	n.a.	62.50
Y_BATCH	1	0	127	128	n.a.	29.07
Total	991	255	277	1,523	n.a.	126.53

INPUT/OUTPUT

Lines Printed	
Local	65,386,631
Remote	52,266,595
Fiche	35,829,298
Cards Punched-Local Only	16,544
Tape Mounts	8,906
Microfiche Developed	4,336
Microfiche Frames Developed	808,007

GRAPHICS

	# OF JOBS	# OF FRAMES
CalComp Jobs	150	n.a.
Matrix 35mm Color	254	1,508
Matrix-8 x 10	23	33
Matrix-Negative	3	4
FR80 Film Plots		
35mm Black/White/Unsprocketed	101	864
35mm Black/White/Sprocketed	0	0
35mm Color	0	0
16mm Black/White/Sprocketed	2	1,121
16mm Color	0	0

DATA MANAGEMENT

Tapes Stored	22,553
New Tapes Saved	1,158
Tapes Released	1,089
Datasets Exported to Tape	2,769
Datasets Imported from Tape	399

* n.a. = not applicable

AVAILABILITY STATISTICS, BY MACHINE (OCTOBER 1 THROUGH OCTOBER 30, 1988)

	Monthly Totals	Scheduled			Unscheduled		
		Hdware	Sftware	Other	Hdware	Sftware	Other
			YELLOW IBM 3033				
All Shifts							
Interruptions	15	3	9	1	1		1
Hrs Unavailable	14.50	4.48	7.96	0.23	1.16		0.65
MTF/Unscheduled	352.75				705.50		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	13	2	9		1		1
Hrs Unavailable	12.26	2.48	7.96		1.16		0.65
MTF/Unscheduled	113.86				227.73		
			RED IBM 3033				
All Shifts							
Interruptions	8	3	3	1		1	
Hrs Unavailable	3.81	2.46	0.96	0.10		0.28	
MTF/Unscheduled	716.18					716.18	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7	3	3			1	
Hrs Unavailable	3.71	2.46	0.96			0.28	
MTF/Unscheduled	236.28					236.28	

AVAILABILITY STATISTICS, BY SERVICE (OCTOBER 1 THROUGH OCTOBER 30, 1988)

	Monthly Totals	Scheduled			Unscheduled		
		Hdware	Sftware	Other	Hdware	Sftware	Other
			CMS				
All Shifts							
Interruptions	8	3	3	1		1	
Hrs Unavailable	3.81	2.46	0.96	0.10		0.28	
MTF/Unscheduled	716.18					716.18	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	7	3	3			1	
Hrs Unavailable	3.71	2.46	0.96			0.28	
MTF/Unscheduled	236.28					236.28	
			WYLBUR				
All Shifts							
Interruptions	15	3	9	1	1		1
Hrs Unavailable	16.53	3.90	9.53	0.31	2.03		0.75
MTF/Unscheduled	351.73				703.46		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	3	9		1		1
Hrs Unavailable	16.21	3.90	9.53		2.03		0.75
MTF/Unscheduled	111.89				223.78		
			MVS TSO				
All Shifts							
Interruptions	15	3	9	1	1		1
Hrs Unavailable	16.25	3.90	9.28	0.31	2.00		0.75
MTF/Unscheduled	351.87				703.75		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	3	9		1		1
Hrs Unavailable	15.93	3.90	9.28		2.00		0.75
MTF/Unscheduled	112.03				224.06		
			JES3				
All Shifts							
Interruptions	15	3	9	1	1		1
Hrs Unavailable	14.70	3.75	8.90	0.23	1.16		0.65
MTF/Unscheduled	352.65				705.30		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	14	3	9		1		1
Hrs Unavailable	14.46	3.75	8.90		1.16		0.65
MTF/Unscheduled	112.76				225.53		
			CICS				
All Shifts							
Interruptions	2				1		1
Hrs Unavailable	2.86				2.11		0.75
MTF/Unscheduled	358.56				717.13		
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	2				1		1
Hrs Unavailable	2.86				2.11		0.75
MTF/Unscheduled	118.56				237.13		
			VAX/VMS (VAX 8700)				
All Shifts							
Interruptions	10		10				
Hrs Unavailable	15.46		15.46				
MTF/Unscheduled							
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	9		9				
Hrs Unavailable	11.71		11.71				
MTF/Unscheduled							
			CRAY				
All Shifts							
Interruptions	25	7	15	1		2	
Hrs Unavailable	49.88	18.08	29.10	0.28		2.41	
MTF/Unscheduled	335.05					335.05	
Monday-Friday, 7:00 a.m.-7:00 p.m.							
Interruptions	16		15			1	
Hrs Unavailable	29.85		29.10			0.75	
MTF/Unscheduled	210.15					210.15	

COMPUTING CENTER USE IN THOUSANDS OF DOLLARS BY COST CENTER (OCTOBER 1 THROUGH OCTOBER 30, 1988)

CC	CCNAME	IBM	VAX	CRAY	OTHER	CCTOTAL
	ADVANCED PHOTON SOURCE					
130	ADVANCED PHOTON SOURCE DIV	2.5	1.5	0.0	2.9	6.9
272	ADVANCED PHOTON SOURCE	0.0	0.0	0.0	0.0	0.0
SUBTOTAL		2.5	1.5	0.0	2.9	6.9
	ENERGY, ENVIRONMENTAL, AND BIOLOGICAL RESEARCH					
110	BIO, ENVIR, & MED RES DIV	4.6	2.9	0.1	3.3	10.8
149	BEM DIV-CTR FOR ENVIR RES	1.6	0.3	0.3	0.7	3.0
174	ENER/ENV/BIO RES PROG DIR	0.2	0.0	0.0	0.1	0.4
190	ENERGY & ENVIR SYST DIV	25.4	21.0	1.0	12.9	60.3
197	OFF OF INTER ENERGY DEV PROGS	0.9	0.0	0.0	0.1	1.0
246	TIS - NATL ENERGY SOFTWARE CT	0.1	0.0	0.0	0.8	1.0
274	ENER/ENV/BIO RES PROG ADM	0.1	0.0	0.0	0.1	0.3
SUBTOTAL		33.0	24.2	1.4	18.0	76.7
	ENGINEERING RESEARCH					
102	EBR-II PROJECT-ANL WEST	3.3	0.1	0.7	0.9	4.9
104	EBR-II PROJECT-ILLINOIS	10.2	0.0	0.0	2.8	13.0
107	CHEMICAL TECHNOLOGY DIVISION	2.6	0.1	0.0	2.1	4.7
112	REACTOR ANAL & SAFETY	17.4	0.6	11.6	7.2	36.9
114	MATLS & COMP TECH DIV	8.9	1.8	0.9	3.9	15.5
115	ENGINEERING DIV - ILL	4.0	0.3	0.1	1.6	6.0
116	APPLIED PHYSICS-ILLINOIS	26.6	2.4	19.0	10.2	58.3
117	APPLIED PHYSICS-ANL WEST	5.2	0.0	13.3	0.4	18.8
118	REACTOR EXP & EXAM DIV	2.1	0.0	0.0	0.2	2.3
119	ANALYTICAL LABORATORY ANL-WES	0.0	0.0	0.0	0.0	0.0
171	ENGRG RES PROG DIR	0.2	0.0	0.0	0.1	0.3
178	FUSION POWER PROGRAM	0.3	0.0	0.0	0.1	0.4
211	ENG DIV-DESIGN ENG DEPT	0.1	0.0	0.0	0.0	0.1
269	CHEM TECH DIV-ANALYTICAL CHEM	0.2	0.0	0.0	0.1	0.2
271	ENGRG RES PROG ADMIN	0.5	0.0	0.0	0.4	0.9
SUBTOTAL		81.6	5.3	45.5	30.0	162.3
	EXTERNAL					
750	ACK WORK PROJECTS	0.7	0.0	0.0	0.2	1.0
751	ACK WORK PROJECTS-DIST	5.8	0.0	0.0	0.6	6.3
752		13.2	0.0	0.0	6.0	19.2
753		0.0	0.0	0.0	0.6	0.7
754		0.0	0.0	0.0	0.1	0.2
757		0.5	0.0	0.0	0.7	1.2
SUBTOTAL		20.3	0.0	0.0	8.3	28.5
	OPERATIONS					
143	SUPP SERV DIV - ELEC DEPT	0.2	0.0	0.0	0.7	0.9
148	HUMAN RESOURCES-HEALTH DEPT	1.3	0.0	0.0	0.3	1.7
150	PLANT FAC & SERV - SPEC MATLS	0.2	0.0	0.0	0.1	0.3
161	TECH INFO SERVICES DEPT	2.3	0.0	0.0	3.1	5.4
201	OFFICE OF THE DIRECTOR	0.3	0.0	0.0	0.4	0.8
202	OFC OF CHIEF OPER OFCR	0.0	0.0	0.0	0.1	0.2
210	SUPP SERV DIV - CENT SHOPS	0.2	0.0	0.0	0.1	0.3
216	SUPPORT SERVICES DIVISION	0.3	0.0	0.0	0.1	0.4
222	PLANT FAC & SERV-LODGING FAC	0.0	0.0	0.0	0.0	0.0
232	PLANT FAC & SERV-SECURITY	0.4	0.0	0.0	0.1	0.4
234	SUPP SERV DIV-OHS-HEALTH PHY	0.2	0.0	0.0	0.1	0.2
235	SUPP SERV DIV-ENV SAFE HEALTH	1.0	0.0	0.0	0.4	1.4
236	PLANT FAC & SERV-FIRE DEPT	0.0	0.0	0.0	0.1	0.1
260	SUPP SERV DIV-GRAPHIC ARTS	0.3	0.0	0.0	1.3	1.5
275	OFFICE OF PUBLIC AFFAIRS	0.5	0.0	0.0	0.1	0.6
276	OFC PUB AF - MOTN PIC UNIT	0.0	0.0	0.0	0.0	0.0
315	SUPP SERV DIV-MATLS & SERV	2.8	0.0	0.0	0.6	3.3
316	PLANT FAC & SERV-VEH MAINT	0.1	0.0	0.0	0.1	0.2
317	PLANT FAC & SERV-DRIV&RIG SER	0.1	0.0	0.0	0.1	0.1
319	SUPP SERV DIV-TRAVEL OFC	0.1	0.0	0.0	0.0	0.2
322	SUPP SERV DIV-PROCUREMENT	0.0	0.0	0.0	0.1	0.1
333	QA, ENVIR & SAFETY OFC	0.1	0.0	0.0	0.1	0.1
336	SUPP SERV DIV - INSPECTION	0.0	0.0	0.0	0.0	0.0
400	OFC OF CHIEF FIN OFFICER	16.3	0.0	0.0	8.4	24.7
401	ACCOUNTING	24.0	0.0	0.0	1.1	25.1
402	OFC CHIEF FIN OFCR-DATA ENTRY	0.0	0.0	0.0	0.1	0.1
403	BUDGET OFFICE	0.0	0.0	0.0	0.0	0.0
410	HUMAN RESOURCES DEPARTMENT	10.1	0.0	0.0	1.9	12.0
412	AFFIRM ACTION PROGRAM	0.1	0.0	0.0	0.2	0.3
501	PLANT FAC & SERV-BLDG MAINT	0.0	0.0	0.0	0.1	0.2
502	PLANT FAC & SERV-INSTALLATION	0.0	0.0	0.0	0.0	0.0
503	PLANT FAC & SERV-GROUNDS	0.0	0.0	0.0	0.0	0.0
504	PLANT FAC & SERV-CUSTODIAL	0.0	0.0	0.0	0.0	0.0
505	PLANT FAC & SERV-WASTE MGMT O	0.1	0.0	0.0	0.1	0.1
506	PLANT FAC & SERV-PLANT MGR OF	0.4	0.0	0.0	0.1	0.6
510	PLANT FAC & SERV-UTILITY SYST	0.0	0.0	0.0	0.0	0.0
512	PLANT FAC & SERV-FAC PLNG/ENG	0.7	0.0	0.0	0.3	1.0
530	SITE MGRS OFC-ANL WEST	0.1	0.0	0.0	0.0	0.2
531	PERSONNEL-ANL WEST	0.1	0.0	0.0	0.0	0.2
532	SPECIAL MATLS-ANL WEST	0.9	0.0	0.0	0.2	1.1
533	ACCOUNTING-ANL WEST	0.0	0.0	0.0	0.0	0.0
534	PURCHASING-ANL WEST	0.0	0.0	0.0	0.0	0.0
535	SECURITY - ANL WEST	0.0	0.0	0.0	0.0	0.1
536	SAFETY STAFF-ANL WEST	0.2	0.0	0.0	0.0	0.3
537	INFORMATION SERVICE-ANL WEST	0.0	0.0	0.0	0.0	0.0
538	MATLS HANDLING-ANL WEST	0.1	0.0	0.0	0.0	0.1
550	COMPUTER APPL & SERV - ANL-W	0.3	0.0	0.0	0.1	0.3
551	RAD MONITORING-ANL WEST	0.0	0.0	0.0	0.0	0.0
554	MACHINE SHOP-ANL WEST	0.0	0.0	0.0	0.0	0.1
556	SITE ENGRG-ANL WEST	0.1	0.0	0.0	0.0	0.2
557	PLANT SERVICES-AW-SERVICE REQ	0.1	0.0	0.0	0.0	0.2
558	PLANT SERVICES-AW-FUNCTION	0.0	0.0	0.0	0.0	0.0
559	FOOD SERVICES - ANL WEST	0.0	0.0	0.0	0.0	0.0
561	OFC OF QUALITY ASSURANCE - AW	0.0	0.0	0.0	0.0	0.0
563	TALENT RESOURCE POOL-ANL WEST	0.0	0.0	0.0	0.0	0.0
SUBTOTAL		64.4	0.0	0.0	21.2	85.7
	PHYSICAL RESEARCH					
105	MATERIALS SCIENCE DIVISION	3.2	6.2	20.4	56.6	86.4
109	PHYSICS DIV	3.2	0.7	4.2	2.1	10.1
120	CHEMISTRY DIV	2.5	3.5	4.0	1.1	11.1
136	INT PULSED NEUT SOURCE PROG	0.1	0.0	0.0	0.5	0.6
137	HIGH ENERGY PHYSICS DIV	1.3	2.2	1.6	1.4	6.5
139	DIV OF EDUCATIONAL PROGRAMS	1.1	0.0	0.0	0.4	1.5
145	MATHEMATICS & COMPUTER SCI DI	0.3	0.0	5.0	4.1	9.5
245	COMPUTING & TELECOMMUNICATIONS	10.8	0.1	1.3	3.8	16.0
247	CTD - COMMUNICATIONS SERVICES	1.7	0.0	0.0	1.4	3.1
273	PHYSICAL RESEARCH PROGRAM ADM	0.1	0.0	0.0	0.0	0.2
SUBTOTAL		24.4	12.7	36.3	71.5	144.9
TOTAL		226.2	43.7	83.3	151.8	505.1

COMPUTING CENTER TELEPHONE NUMBERS

Information and Assistance	**Onsite (Illinois)**	**Onsite (Idaho)**	**Offsite (Area Code 312)**
Current System Status Recorded Message	2-5466	8-972-5466	972-5466
User Consultant	2-5405	8-972-5405	972-5405
Documentation	2-5405	8-972-5405	972-5405
Computer Operations	2-5421	8-972-5421	972-5421
VM/SP Operator	2-8442	8-972-8442	972-8442
RADS Maintenance	2-7273	n.a.	972-7273
Computer Callback Service	1-800-332-1478 (only within Illinois)		
CICS, CMS, Wylbur, and TSO Interactive Computing Services			
IBM 3270 Protocol Converter 1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-3270	n.a.	972-3270
X.25 Terminal Multiplexor (9.6K Bits Per Second)	2-2525	n.a.	n.a.
IBM 3174 Cluster Controller	2-3174	n.a.	n.a.
1,200 Bits Per Second Full-Duplex (Bell 212 and Hayes Compatible Modems)	2-2212	n.a.	972-2212
1,200 Bits Per Second Full-Duplex (Vadic 3400 Compatible Modems)	2-7612	n.a.	972-7612
300 Bits Per Second	2-7603	n.a.	972-7603
Batch Remote Job Entry Service			
2,000 or 2,400 Bits Per Second (Bell 201A and 201C Compatible Modems)	2-7989	n.a.	972-7989
4,800 Bits Per Second (Bell 208B Compatible Modems)	2-7573	n.a.	972-7573
Central DEC VAX 8700 and Cray VMS Station			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-8700	n.a.	972-8700
Argonne TCP/IP Network			
1200 to 19.2K Bits Per Second (Onsite) 1200 to 2400 Bits Per Second (Offsite)	2-5588	n.a.	972-5588
Argonne MFEnet Dial-Up			
300 or 1200 Bits Per Second	2-7920	n.a.	972-7920
ARPAnet Data Communications Network			
1,200 to 2,400 Bits Per Second Full-Duplex	2-7490	n.a.	972-7490

Tymnet Commercial Packet-Switching Network

Use the CMS TYMNET Zdisk exec for the phone numbers in major U.S. cities.

COMPUTING CENTER SERVICE SCHEDULE

(All Times Are Central Standard Time)

	MVS JES3 Batch, UNICOS Wylbur, and TSO	**VM/SP**	**VMS**	**MFEnet Gateway**	**ARPAnet**
Monday to Thursday	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-07:00* 08:30-24:00	00:00-24:00
Friday to Sunday	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00	00:00-24:00

* Except for the interruption of UNICOS from 6:00 a.m. until 8:30 a.m. on Tuesdays and Thursdays for maintenance, service continues uninterrupted past 7:00 a.m. unless time is necessary for system work or to permit scheduled hardware and software maintenance. Computing and Telecommunications will not routinely schedule interruptions of computing center interactive, batch, and network services on Friday, Saturday, or Sunday mornings. By 4:30 p.m. each day, Computer Operations will announce the next day's planned service interruptions in the Current System Status Recorded Message (extension 2-5466) and in logon messages of the affected interactive systems. Computing and Telecommunications will announce planned interruptions to service on Friday, Saturday, Sunday, or for more than two-and-a-half hours at any time in the online NEWS as many days in advance as possible. Call or logon to check these announcements after 4:30 p.m. before making plans that require the availability of a service the following morning.

CUMULATIVE SUBJECT INDEX THROUGH DECEMBER 1988

For your convenience, we list here the cumulative subject index from previous years's Newsletters through December 1988. We will publish this list for you annually in the December issue.

- //*NET ... Newsletter (see Dependent Job Control)

- "NE" linkage editor option ... Newsletter 525, Newsletter 544

- Abends
  - 322 abend formula adjusted for excessive wait times ... Newsletter 1385
- ACCESS command, accepts 26 letter modes ... Newsletter 1394
- Account aliases
  - assignments for multiple accounts ... Newsletter 1563
  - VAX NJE users may specify for MVS batch jobs ... Newsletter 2518
- Account changes ... Newsletter 1930
- Account code changes for FY1983 ... Newsletter 1679
- Account Services
  - new location ... Newsletter 1729
  - offering lower cost accounts ... Newsletter 1969
  - services provided by ... Newsletter 1454
- Accounting ... Newsletter (see Computer usage accounting), Newsletter 2254
- ACCT=NO322 parameter
  - not available in MVS ... Newsletter 1610
- ACRF ... Newsletter (see Advanced Computing Research Facility)
- ADM-3 terminal problem ... Newsletter 1227
- Administrative computing impact on 3800 printer ... Newsletter 1639
- Administrative Long-Range Plan ... Newsletter 2157, Newsletter 2346, Newsletter 2559
- Administrative systems
  - disaster recovery plan ... Newsletter 2247
- Administrative systems disaster recovery plsn ... Newsletter 2578
- ADP Long-Range Plan ... Newsletter 1283
  - FY1983 input data requested ... Newsletter 1484
  - update ... Newsletter 1729
- ADRS
  - computer-based training course available in CMS ... Newsletter 2479
- Advanced Computing Research Facility (ACRF) ... Newsletter 2129, Newsletter 2143, Newsletter 2170, Newsletter 2179, Newsletter 2313, Newsletter 2363, Newsletter 2513
  - available from MFEnet ... Newsletter 2346
  - parallel computing class ... Newsletter 2467, Newsletter 2478, Newsletter 2487, Newsletter 2499, Newsletter 2514, Newsletter 2525, Newsletter 2577, Newsletter 2607
  - programming techniques seminar ... Newsletter 2514, Newsletter 2525
  - two-week Institute in parallel computing ... Newsletter 2525
  - update ... Newsletter 2478
- Advanced Computing Seminars ... Newsletter 1787, Newsletter 1804, Newsletter 1811, Newsletter 1823, Newsletter 1833, Newsletter 1839, Newsletter 1850, Newsletter 1859, Newsletter 1867, Newsletter 1877, Newsletter 1886, Newsletter 1897, Newsletter 1945, Newsletter 1956, Newsletter 1970, Newsletter 1980, Newsletter 1992, Newsletter 2015, Newsletter 2055, Newsletter 2063, Newsletter 2073, Newsletter 2085, Newsletter 2143, Newsletter 2212, Newsletter 2232, Newsletter 2251, Newsletter 2264, Newsletter 2280, Newsletter 2292, Newsletter 2315, Newsletter 2327, Newsletter 2348, Newsletter 2384, Newsletter 2409, Newsletter 2489, Newsletter 2500, Newsletter 2577, Newsletter 2609
- Advanced Scientific Computer Project ... Newsletter 1109, Newsletter (see Class VI computers)
- AFRAND random number subroutine ... Newsletter 1440
- Algol
  - available only in OS/MVT ... Newsletter 1593
- Algorithms, unconstrained nonlinear optimization ... Newsletter 982
- Alice Image Processing System ... Newsletter 1621
  - to be shut down ... Newsletter 1933
- ALLOCATE command ... Newsletter 2414
- AMD Computer Materials Disposition Form ... Newsletter 1553
- AMDLIB ... Newsletter 489, Newsletter 539, Newsletter 587, Newsletter 615
  - ABEND ... Newsletter 1133
  - ACDCMP subroutine update ... Newsletter 1468
  - additions to ... Newsletter 627, Newsletter 777, Newsletter 815, Newsletter 958
  - BESIK routine partially replaced by RIBESL ... Newsletter 1597
  - BGPOL-1 subroutine ... Newsletter 1468
  - CDEONE ... Newsletter 958
  - changes ... Newsletter 742, Newsletter 785, Newsletter 1031, Newsletter 1078, Newsletter 1358, Newsletter 1652
  - CROUT ... Newsletter 785
  - CROUTC ... Newsletter 785
  - dataset name changed ... Newsletter 1652
  - DROMB routine updated ... Newsletter 1424
  - DTAN/DCOT routine modified ... Newsletter 1404
  - D2575-GEARDV subroutine superseded ... Newsletter 1500
  - guidelines for using ... Newsletter 1589
  - in VM/SP ... Newsletter 1352
  - ITIME routine now SYS1 ... Newsletter 1404
  - linearly constrained least-square package ... Newsletter 1500
  - LINPACK added ... Newsletter 1292
  - LINPACK relacements for deleted routines ... Newsletter 1520
  - LSLSQ package added ... Newsletter 1500
  - LSODE package added ... Newsletter 1500
  - LSODI package added ... Newsletter 1543
  - MINPACK-1 package added ... Newsletter 1468, Newsletter 1481
  - obsolete linear algebra routines deleted ... Newsletter 1520
  - one online version ... Newsletter 1032, Newsletter 1048, Newsletter 1082
  - online documentation available ... Newsletter 1551
  - ordinary differential equation solver ... Newsletter 1500, Newsletter 1543
  - random number subroutine ... Newsletter 1440
  - renamed to SYS1.AMDLIB2 ... Newsletter 1652
  - RIBESL routine added ... Newsletter 1597
  - source deck available ... Newsletter 1396
- AMDLIB2 TXTLIB in VM/SP ... Newsletter 1380
- AMPS
  - data available to computer users ... Newsletter 1811
  - month-to-date purchase order file discontinued ... Newsletter 2204
- ANL D452S ENDACE ... Newsletter 958
- ANL F248S RITZIT ... Newsletter 958
- ANL logo
  - graphics routines revised ... Newsletter 1402
  - in Disspla ... Newsletter 1934
  - specifying size and position for ... Newsletter 1485
- ANLADM1 ... Newsletter 2299
- ANLADM2 ... Newsletter 2299
- ANLCEN, name changed ... Newsletter 1686
- ANLCHM ... Newsletter 1686
- ANLCMT ... Newsletter 1686
- ANLDIS ... Newsletter 1754
- ANLEES1 ... Newsletter 2387
- ANLEES2 ... Newsletter 2387
- ANLEES3 ... Newsletter 2387
- ANLEL ... Newsletter 1928
- ANLMCS ... Newsletter 1906
- ANLMST ... Newsletter 2010
- ANLMVS, MVS Unit Test Machine ... Newsletter 1377
- ANLPHONE ... Newsletter 2335
  - available to VAX NJE nodes and Wylbur ... Newsletter 2034
  - CMS Z-disk exec ... Newsletter 1684
  - electronic mail addresses ... Newsletter 1879, Newsletter 2301
  - electronic mail addresses added to ... Newsletter 1750
  - enhanced to search by badge number ... Newsletter 1868
  - expanded to include DOE and non-ANL employees ... Newsletter 1899
  - radio page numbers added to ... Newsletter 2388
- ANLPHY ... Newsletter 1753
- ANLPOP utility ... Newsletter 2090
- ANLVM.FICHE, virtual machine for microfiche support ... Newsletter 1508
- Answer/DB
  - computer-based training course available in CMS ... Newsletter 2479
- ANSYS Structural Analysis Program ... Newsletter 1995
  - assistance limited to general usage ... Newsletter 2066
  - available on the VAX 8700 ... Newsletter 2570
  - graphs may be sent to Argonne plotters ... Newsletter 2599
  - lower rates ... Newsletter 2118
  - to move from MVS batch to VAX 8700 ... Newsletter 2543
  - Version 4.2 available for testing ... Newsletter 2293
- ANSYS 4.2 ... Newsletter 2317
- Apple Computer
  - combining Macintosh pictures with Waterloo Script in CMS ... Newsletter 2304
  - contract with University of Chicago ... Newsletter 1842
  - discount contract with University of Chicago ... Newsletter 1879
  - LaserWriter available for general graphics use ... Newsletter 2280
  - LaserWriter connected to RADS ... Newsletter 2280
  - MacDraw recommended for Macintosh ... Newsletter 2079
  - Macintosh ImageWriter difficulties fixed ... Newsletter 2285
  - Macintosh recommended for selected applications ... Newsletter 1996
  - MacKermit Version 0.8(34) available for Macintosh ... Newsletter 2187
  - MacKermit Version 0.9(40) available for the Macintosh ... Newsletter 2572
  - MacTerminal recommended for communication with CMS on Macintosh ... Newsletter 1996
  - NCSA Telnet program available for ... Newsletter 2615
  - new Kermit diskettes available for ... Newsletter 2427
  - new version of Kermit available for Macintosh ... Newsletter 2087
  - requires modified RS-232 cable for ADI connection ... Newsletter 2412
  - revised price list ... Newsletter 2016
  - tn3270 program available for ... Newsletter 2615
  - University of Chicago accepting personal orders for Macintosh ... Newsletter 1921
- Apple II personal computer
  - file transfer to VM/SP ... Newsletter 1909
  - Kermit file transfer program ... Newsletter 1909
  - used as a terminal ... Newsletter 1660
- Apple IIe personal computer
  - used as a terminal ... Newsletter 1900
- Apple LaserWriter ... Newsletter 2284
  - available for general graphics use ... Newsletter 2280
  - connected to RADS ... Newsletter 2280
  - PRINTPS exec ... Newsletter 2350
  - upgrade kit available ... Newsletter 2487
  - Versatec users encouraged to move to ... Newsletter 2335

Apple Macintosh personal computer
  Hypercard Workshop ... Newsletter 2428
  ImageWriter difficulties fixed ... Newsletter 2285
  local area network recommendations ... Newsletter 2158
  NCSA Telnet program available for ... Newsletter 2615
  tn3270 program available for ... Newsletter 2615
Application System
  computer-based training courses available in CMS ... Newsletter 2479
  Project Management Office evaluation ... Newsletter 2497
Argonne
  directory updated ... Newsletter 2335
ARGONNE COMPUTING NEWSLETTER
  distribution policy ... Newsletter 2011
  elimination of statistics ... Newsletter 2313
  new format ... Newsletter 2313
  new look ... Newsletter 2388
  now received by all Argonne computer users ... Newsletter 1713
Argonne logo ... Newsletter (see ANL logo)
Argonne NJE Network
  connection to DOE-Germantown ... Newsletter 2275, Newsletter 2382
  distributed VAX printers available ... Newsletter 2599
  document information available online ... Newsletter 2080
  electronic mail between VAX/VMS and IBM VM/SP ... Newsletter 1703
  file transfer extended to VAX/VMS ... Newsletter 1705
  general sequential file transfer ... Newsletter 1705
  Laboratory-wide DECnet access to ... Newsletter 2210
  linked to MFEnet by gateway ... Newsletter 2071
  NBI connected to ... Newsletter 2387
  NBI connection to ... Newsletter 2299
  network node update ... Newsletter 1686, Newsletter 1753, Newsletter 1906, Newsletter 1927, Newsletter 1928, Newsletter 1997, Newsletter 2010
  software upgraded ... Newsletter 2066
  valid electronic mail nodes ... Newsletter 1750
Argonne telephone directory
  available in CMS ... Newsletter 1684
  updated ... Newsletter 2108
ARPAnet
  ANL access changes ... Newsletter 2568
  availability ... Newsletter 1076
  becomes production system 10/1/78 ... Newsletter 1201
  BITnet gateway changes ... Newsletter 2458
  computer network ... Newsletter 934
  file transfer protocol (MVS) ... Newsletter 1591
  link to Telenet disabled ... Newsletter 1507
  service available again ... Newsletter 1768
  service indefinitely interrupted ... Newsletter 1745
  VAX MAIL and SEND commands ... Newsletter 2072
ASCII table conversions ... Newsletter 2480
ASCII terminals ... Newsletter 985
  recommended ... Newsletter 1821
  required settings at ANL ... Newsletter 1795
  simulated as IBM 3270's ... Newsletter 1721, Newsletter 1769
  simulated as IBM 3270s ... Newsletter 1817, Newsletter 2412
  using Hydra Protocol Converter to emulate IBM 3270 terminals ... Newsletter 2411
ASCII to EBCDIC translation ... Newsletter 2344, Newsletter 2371
ASHMEDAI, symbolic algebra system ... Newsletter 832
ASM TSO command ... Newsletter 856
ASP
  header/trailer cards, new ... Newsletter 953
  new Zero job priority established ... Newsletter 1417
  Standby priority number changed ... Newsletter 1417
ASP 3.2.2 ... Newsletter 1002, Newsletter 1006, Newsletter 1011
  test problems ... Newsletter 991
Assembler G
  upgraded ... Newsletter 1029
  User's Guide ... Newsletter 632
  Version 2, Level 7 ... Newsletter 629
Assembler H added ... Newsletter 965
Assembler prompters, TSO ... Newsletter 719, Newsletter 730
Asynchronous Data Interface (ADI)
  Apple Macintosh modified RS-232 cable required for ... Newsletter 2412
  cables required for ... Newsletter 2397
  use MKO with ... Newsletter 2531
Automated Materials/Payables System ... Newsletter (see AMPS)
Automated Reasoning Workshop ... Newsletter 1775
Automatic dispatching priority ... Newsletter 510
Automatic IMPORT ... Newsletter 973
Automatic LINK and ACCESS
  of VM/SP program product minidisks ... Newsletter 1419
Automatic quadrature ... Newsletter 587
Automatic read-only access, if other user linked to minidisk ... Newsletter 1394
Avoiding catalog searches ... Newsletter 517

Backup generators for computers ... Newsletter 1823
Backup of user disks, how to ... Newsletter 968
Backup system for public disks ... Newsletter 702, Newsletter 718
Backup systems ... Newsletter 1221
Backup tapes
  provided for all online user data ... Newsletter 2141
  to be purged ... Newsletter 1373
Batch
  DJC job-nets (//*NET) ... Newsletter (see Dependent Job Control)
  manuals revised ... Newsletter 1550
  operating system maintenance ... Newsletter 1714
  output distribution changes ... Newsletter 1803
  password changes ... Newsletter 1681, Newsletter 1693, Newsletter 1708
  RACF to authorize access to jobs ... Newsletter 1669, Newsletter 1681, Newsletter 1693, Newsletter 1708
BATCH COMPUTING AT ANL ... Newsletter 1343
Bell 1,200-baud modems, limited support of ... Newsletter 1540
Bell 201C 2,400-baud modem service for batch users ... Newsletter 1670
Bin-Hex program for Macintosh ... Newsletter 2187
Biomedical Computer Programs
  (BMDP) ... Newsletter 1994
  BMDP-79 ... Newsletter 1432, Newsletter 1470
  BMDP-81 ... Newsletter 1588, Newsletter 1652
  BMDP-87 ... Newsletter 2480
  documentation ... Newsletter 1432, Newsletter 1588
BITnet
  compatibility with CMS electronic mail ... Newsletter 1869
  discussion groups available ... Newsletter 2532
  electronic mail from MFEnet via Argonne gateway ... Newsletter 2155
  Laboratory-wide DECnet access to ... Newsletter 2210
  NBI connection to ... Newsletter 2299
  network ... Newsletter 1831, Newsletter 1857, Newsletter 1906, Newsletter 1927, Newsletter 1928, Newsletter 1944, Newsletter 2015, Newsletter 2054, Newsletter 2095, Newsletter 2115, Newsletter 2142, Newsletter 2155, Newsletter 2180, Newsletter 2211, Newsletter 2248, Newsletter 2277, Newsletter 2302, Newsletter 2326, Newsletter 2362, Newsletter 2383, Newsletter 2408, Newsletter 2445, Newsletter 2467, Newsletter 2493, Newsletter 2518, Newsletter 2550, Newsletter 2584, Newsletter 2616
  new gateways ... Newsletter 2300
  usage limits ... Newsletter 2314
  X.400 European gateways no longer available from ... Newsletter 2249
BLKSIZE
  for CMS TAPEDUMP command ... Newsletter 1394
Blocksizes
  changed in MVS cataloged procedures ... Newsletter 2061
  for IBM 3380 disks ... Newsletter 2061
  for Librarian datasets ... Newsletter 2031, Newsletter 2373
  for 3380 scratch (SASCR) disks ... Newsletter 2410
  new VM/SP-supported ... Newsletter 1394
  recommended for mixed storage classes ... Newsletter 1617, Newsletter 2029, Newsletter 2061
  recommended for typical datasets ... Newsletter 1384, Newsletter 1617, Newsletter 2029, Newsletter 2061
  used by Wylbur ... Newsletter 2061
BLOWUP
  available on color plotter ... Newsletter 2489
BLP to be discontinued 7/11/83 ... Newsletter 1777, Newsletter 1790
BMDP ... Newsletter (see Biomedical Computer Programs)
Bug reporting ... Newsletter (see Problem reporting system)

C compiler available in CMS ... Newsletter 2185
CAI (computer-aided instruction)
  available for Datatrieve ... Newsletter 2519, Newsletter 2571
  available for EVE ... Newsletter 2519
CalComp
  last pen plotter decommissioned ... Newsletter 2503
  plotter charges ... Newsletter 757
  plotters ... Newsletter 733
  routines ... Newsletter 629
  subroutine package, new version ... Newsletter 814
CalComp Microfiche Printer
  character set ... Newsletter 1134
  Script output ... Newsletter 1135
CalComp 580 plotter
  driver execution time ... Newsletter 911
  drivers ... Newsletter 810
  planned decommissioning ... Newsletter 2440
  replacement to be installed ... Newsletter 2284
  retirement of ... Newsletter 2309
CalComp 5835XP color plotter
  available for testing ... Newsletter 2438
  BLOWUP feature available ... Newsletter 2489
  implementation schedule ... Newsletter 2438
  STACK3 feature available ... Newsletter 2489
  to be acquired ... Newsletter 2407
CalComp 780 plotter
  driver execution time ... Newsletter 911
  planned decommissioning ... Newsletter 2440
  replacement to be installed ... Newsletter 2284
CalComp 936 plotter
  planned decommissioning ... Newsletter 2440
  plots time limit ... Newsletter 1144
  replacement to be installed ... Newsletter 2284
Callback Service ... Newsletter (see Communications), Newsletter (see Computer Callback Service)
CAL580
  old CalComp plotter decommissioned ... Newsletter 2503
CAL780
  old CalComp plotter decommissioned ... Newsletter 2503
CAL936
  old CalComp plotter decommissioned ... Newsletter 2503
CAMAC controller, development effort ... Newsletter 1453

Cataloged procedures ... Newsletter 627
  control card data moved to ANL1.PROCDATA ... Newsletter 1742
  experimental versions ... Newsletter 1265
  for Fortran G Compiler deleted ... Newsletter 1422
  for updating obsolete load modules ... Newsletter 1422
  LIBU, dispostion in ... Newsletter 1379
  Linkage Editor SIZE ... Newsletter 1781
  OLDTONEW temporary procedure ... Newsletter 1422
  to access Script ... Newsletter 1403
  updated for MVS ... Newsletter 1608
Catalogs
  dataset naming conventions ... Newsletter 1618
  moving to PERM volumes ... Newsletter 2343
  utility use of ... Newsletter 2343
CBLANK Xedit subcommand ... Newsletter 2065
CBT ... Newsletter (see computer-based training courses available in CMS), Newsletter 2479
CCOPY Xedit subcommand ... Newsletter 2065
CC5835 ... Newsletter (see CalComp 5835XP color plotter)
CDEONE ... Newsletter 958
CEXCHANG Xedit subcommand ... Newsletter 2065
Chained Scheduling ... Newsletter 1356
Character translation tables ... Newsletter 985, Newsletter 1350
  error in documentation for VM/SP ... Newsletter 1487
  for Wylbur ... Newsletter 1446
Charges
  for batch jobs to change with MVS conversion ... Newsletter 1493
  for DASD classes to be equalized ... Newsletter 1493
  for dedicated ports to be instituted ... Newsletter 1493
  for documentation ... Newsletter 1464
  for FY1982 ... Newsletter 1572
  for graphics services to be revised ... Newsletter 1493
  for VM/SP storage occupancy ... Newsletter 1401
  potential changes in 1981 ... Newsletter 1493
  to outdated cost codes transferred to overhead accounts ... Newsletter 1474, Newsletter 1563
Checkout, PL/I Compiler update ... Newsletter 1380
CICS
  computer-based training courses available in CMS ... Newsletter 2559
  Kermit commands automate login for ... Newsletter 2612
  Materials Catalog now available ... Newsletter 2225
  new application menu screen ... Newsletter 2526
  new screen planned ... Newsletter 2487
  Personnel system ... Newsletter 1750
  software installed ... Newsletter 1713
  software to be installed ... Newsletter 1646
  to be upgraded to Version 1.7 ... Newsletter 2290
Class VI computers
  computing time available ... Newsletter 1749
Class Z ... Newsletter 1687
  first quarter usage ... Newsletter 1729
CMOVE Xedit subcommand ... Newsletter 2065
CMS ... Newsletter (see VM/SP)
  Argonne telephone directory online ... Newsletter 1684
  C compiler available ... Newsletter 2185
  combining text with graphics (PostScript) ... Newsletter 2226
  commands, DEFAULTS ... Newsletter 1868
  commands, NAMEFIND ... Newsletter 1725
  commands, NAMES ... Newsletter 1704, Newsletter 1725, Newsletter 1868
  commands, NOTE ... Newsletter 1704, Newsletter 1725, Newsletter 1868, Newsletter 1869, Newsletter 1991
  commands, PEEK ... Newsletter 1704
  commands, RECEIVE ... Newsletter 1704
  commands, SENDFILE ... Newsletter 1704, Newsletter 1725, Newsletter 1991
  commands, SORT ... Newsletter 1763
  commands, TELL ... Newsletter 1725
  commands, VMSCHED ... Newsletter 2089
  Computer Graphics Metafile (CGM) graphics capabilities available for testing ... Newsletter 2547
  computer-based training (CBT) courses available ... Newsletter 2394, Newsletter 2424, Newsletter 2559
  default PROFILE EXEC provided for new users ... Newsletter 1766
  Disspla 10.5 available for testing ... Newsletter 2502
  electronic mail ... Newsletter 1870
  execs, ANLPHONE ... Newsletter 1684, Newsletter 1868
  execs, DOCUMENT ... Newsletter 2080
  execs, GETFILE ... Newsletter 1650
  execs, LISTPS ... Newsletter 2336
  execs, LOOKUP ... Newsletter 1773
  execs, MOUNT ... Newsletter 1807
  execs, PRINTPS ... Newsletter 2350
  execs, PROFILE default ... Newsletter 1766
  execs, PS ... Newsletter 2336
  execs, PUTFILE ... Newsletter 1650
  execs, SCHEDULE ... Newsletter 2089
  execs, SPEAKLIB ... Newsletter 2076
  execs, TAPELIBR ... Newsletter 2429
  execs, TESTCMS ... Newsletter 1684
  execs, USERDETA ... Newsletter 2254
  execs, ZMAIL to be removed from Z-disk ... Newsletter 1704
  file transfer using Kermit ... Newsletter 2087, Newsletter 2187
  Fortran ... Newsletter 1834
  Fortran H Extended (Enhanced) Compiler (Version 1.3.0) becomes production ... Newsletter 1960
  Fortran H Extended Compiler ... Newsletter 1392, Newsletter 1411
  Fortran Interactive Debug ... Newsletter 1344
  Fortran Mod II Library ... Newsletter 1392
  IBM VS Fortran compiler and library (Release 4.1) production version ... Newsletter 2160
  IBM VS Fortran compiler and library (Version 3) available for testing ... Newsletter 1792
  IBM VS Fortran compiler and library available for testing ... Newsletter 1726, Newsletter 2075
  IBM VS Fortran Release 4 defaults to load mode ... Newsletter 2191
  ITIME timing subroutine now available ... Newsletter 2044
  Kermit file transfer program ... Newsletter 2087, Newsletter 2187
  Kermit upgrade ... Newsletter 2545
  MacTerminal allows Macintosh to communicate with ... Newsletter 1996
  minidisk backup and restoration ... Newsletter 1367
  minidisk passwords ... Newsletter 1715
  minidisk restoral charge ... Newsletter 1408
  minidisk size, procedure for changing ... Newsletter 1806
  NAMES file on line-by-line terminal ... Newsletter 1725
  PL/I Checkout Compiler removal ... Newsletter 2588
  PL/I Optimizing Compiler available for testing ... Newsletter 2500
  REDUCE symbolic algebra program available ... Newsletter 2235
  SAS/Graph Version 5 ... Newsletter 2282
  Speakeasy ... Newsletter 1308
  Speakeasy III Omicron to be removed from CMS ... Newsletter 2332
  Speakeasy III Pi to be removed from ... Newsletter 2076, Newsletter 2078
  Speakeasy IV Beta+ to be removed from ... Newsletter 2076
  Speakeasy IV Delta available for testing ... Newsletter 2076
  Speakeasy IV Delta+ available for testing ... Newsletter 2332
  Speakeasy IV production postponed ... Newsletter 1984
  Speakeasy IV Version Epsilon available for testing ... Newsletter 2526
  Speakeasy Pi version available for testing ... Newsletter 1793
  Speakeasy, upgraded to Nu+ ... Newsletter 1457, Newsletter 1577
  Statistical Analysis System Full-Screen Product (SAS/FSP) available ... Newsletter 2098
  Tellagraf Version 6.1 available for testing ... Newsletter 2502
  translate tables changing ... Newsletter 2344
  tutorial for learning Xedit ... Newsletter 2294, Newsletter 2331
  upgrade to Release 5 ... Newsletter 2480
  using CalComp 5835XP with Cuechart ... Newsletter 2439
  using 5835 XP with Tellagraf ... Newsletter 2439
  using 5835XP with Disspla ... Newsletter 2439
  V/Spell to be discontinued ... Newsletter 2617
  virtual machine storage ... Newsletter 1368
  virtual storage size increased ... Newsletter 2134
  VM/SP Release 5 available for testing ... Newsletter 2515
  VS Fortran (Release 3) becomes production ... Newsletter 1834
  VS Fortran (Version 1.3.1) becomes production ... Newsletter 1959
  Waterloo C (Version 3.0) available for testing ... Newsletter 2515
  Wylbur test version ... Newsletter 1794
  Xedit self-teach tutorial ... Newsletter 2331
CMS AT ANL: A PRIMER
  revised ... Newsletter 1589
CMS execs
  TESTCMS ... Newsletter 2480
CMS Kermit
  Version 2.0 installed ... Newsletter 2088
Cobol
  ANSI compiler not available after 11/30/82 ... Newsletter 1694
  Cataloged procedures updated for VS Cobol ... Newsletter 1694
  compiler options ... Newsletter 1674
  computer-based training courses available in CMS ... Newsletter 2559
  Version 4 ... Newsletter 809, Newsletter 1026
  VS Cobol differences from ANSI ... Newsletter 1674, Newsletter 1694
  VS Cobol licensed for MVS only ... Newsletter 1674
  VS compiler becomes production compiler 10/11/82 ... Newsletter 1694
Color plotter to be acquired ... Newsletter 2407
Communications ... Newsletter (see Computer Callback Service)
  FY1987 monthly rates for services ... Newsletter 2275
  recommended modems ... Newsletter 1875
Communications Services
  transferred ... Newsletter 1761
Compilers
  Algol, Fortran G, and RPG available only in OS/MVT ... Newsletter 1593
  checkout for PL/I update ... Newsletter 1380
  Cray CFT77 Fortran compiler now available ... Newsletter 2501
  Fortran H available only in OS/MVT ... Newsletter 1658
  VS Cobol licensed for MVS only ... Newsletter 1674
Computer access numbers change 9/21/87 ... Newsletter 2396

- Computer acquisition
  - plan ... Newsletter 2085
  - procedures ... Newsletter 2006
- Computer Callback Service ... Newsletter 2325, Newsletter 2348
  - available for ANL computer users ... Newsletter 1721
  - problem fixed ... Newsletter 2429
  - updated for 2400 bps modems ... Newsletter 2348
  - 800 Service ... Newsletter 2348
- Computer Graphics Metafile (CGM) graphics capabilities available for testing in CMS ... Newsletter 2547
- Computer Graphics Metafile (CGM) graphics capabilities available for testing in MVS ... Newsletter 2547
- Computer Graphics Metafile (CGM) graphics capabilities available in VMS ... Newsletter 2566
- Computer literacy
  - computer-based training (CBT) courses available in CMS ... Newsletter 2394
- Computer maintenance services available from Electronics ... Newsletter 1762, Newsletter 1958, Newsletter 2149, Newsletter 2247
- Computer Materials Disposition Form ... Newsletter 1553
- Computer orientation for summer visitors ... Newsletter 1655
- Computer Output and Document Distribution Area (Building 221)
  - renovation of ... Newsletter 2482
- Computer performance
  - comparisons using LINPACK ... Newsletter 1876
- Computer policy, Computer Advisory Committee role in ... Newsletter 1407
- Computer protection ... Newsletter 2577
  - automatic revocation of user privileges implemented ... Newsletter 1865
  - disaster backup tape creation ... Newsletter 2214
  - disaster backup tape storage ... Newsletter 2213
  - protection against attempts to decipher RACF passwords ... Newsletter 1865
  - reporting computer difficulties ... Newsletter 2408
- Computer Protection Policy ... Newsletter 1865
- Computer security ... Newsletter (see RACF), Newsletter (see Data security)
- Computer special interest groups ... Newsletter 1689
- Computer system, plans to acquire ... Newsletter 2225
- Computer typesetting service ... Newsletter 2262
- Computer upgrades available from Electronics ... Newsletter 1958, Newsletter 2149
- Computer usage accounting ... Newsletter 1679, Newsletter 2254
- Computer Use Authorization ... Newsletter (see Passwords), Newsletter (see RACF)
  - not used in MVS ... Newsletter 1567
- Computer Users Group
  - current officers and subcommittees ... Newsletter 1689, Newsletter 1664, Newsletter 2506
  - Data Acquisition Subcommittee formed ... Newsletter 1453
  - Macintosh Special Interest Group formed ... Newsletter 2000
- Computer-Aided Engineering ... Newsletter 1885, Newsletter 2317
  - selection of system ... Newsletter 2113
  - system available ... Newsletter 2199
  - users group formed ... Newsletter 2009
- Computer-based training (CBT)
  - available in CMS ... Newsletter 2294, Newsletter 2331, Newsletter 2394, Newsletter 2424, Newsletter 2479, Newsletter 2559
  - Language Sensitive Editor available ... Newsletter 2491
- Computing Advisory Committee
  - formed to guide Laboratory policy ... Newsletter 1407
- Computing and Telecommunications Division established ... Newsletter 2543
- Computing Center
  - use and workload statistics revised ... Newsletter 1646
  - 1982 holiday schedule ... Newsletter 1700, Newsletter 1717
  - 1983 holiday schedule ... Newsletter 1839
  - 1984 holiday schedule ... Newsletter 1957, Newsletter 1971
  - 1985 holiday schedule ... Newsletter 2097, Newsletter 2106
  - 1986 holiday schedule ... Newsletter 2115
  - 1987 holiday schedule ... Newsletter 2290
- Computing Center service schedule
  - Christmas 1986 and New Year's 1987 holidays ... Newsletter 2278
  - Christmas 1987 and New Year's 1988 holiday ... Newsletter 2425
  - Christmas 1987 and New Year's 1988 holidays ... Newsletter 2442
  - Christmas 1988 and New Year's 1989 holidays ... Newsletter 2596, Newsletter 2607
  - Fourth of July weekend ... Newsletter 2364
  - Fourth of July 1986 holiday ... Newsletter 2180
  - Fourth of July 1988 holiday ... Newsletter 2513
  - Labor Day holiday ... Newsletter 2384
  - Labor Day 1985 holiday ... Newsletter 2064
  - Labor Day 1986 holiday ... Newsletter 2211
  - Labor Day 1988 holiday ... Newsletter 2544
  - Memorial Day 1985 holiday ... Newsletter 2027
  - Memorial Day 1986 holiday ... Newsletter 2169
  - Memorial Day 1987 holiday ... Newsletter 2347
  - Memorial Day 1988 holiday ... Newsletter 2499
  - revisions ... Newsletter 1571, Newsletter 1586, Newsletter 1997
  - Thanksgiving holiday (1987) ... Newsletter 2442
  - Thanksgiving 1986 holiday ... Newsletter 2263
  - Thanksgiving 1987 holiday ... Newsletter 2425
- Computing classes scheduled for January 1989 ... Newsletter 2608
- Computing Policy Committee established ... Newsletter 1761
- Computing rates ... Newsletter (see Service rates)
- Computing seminar scheduled for October 1988 ... Newsletter 2577
- Computing Services
  - new leadership for ... Newsletter 2247
- Computing Services Division established ... Newsletter 1667
- Computing Services shutdown policy ... Newsletter 2349
- Computing Task Group established ... Newsletter 2025
- Computing Workstation Components Acquisition Policy ... Newsletter 2061
- Concatenating datasets with different blocksizes ... Newsletter 2029
- Connection Machine
  - acquired by Mathematics and Computer Science Division ... Newsletter 2513
- Constrained minimization
  - AMDLIB, VMCON and VMCON1 routines ... Newsletter 1423
  - NAG library routines for ... Newsletter 1423
  - routines added to SYS2.AMDLIB ... Newsletter 1423
- Consulting ... Newsletter 2169
  - assistance available through electronic mail ... Newsletter 2543
  - new location for office ... Newsletter 1729
  - online available ... Newsletter 1611
  - User Services ... Newsletter 1005
- Continuous System Modeling Program (CSMP)
  - assistance limited to general usage ... Newsletter 2066
  - CSMP EXEC ... Newsletter 1409
  - CSMPT EXEC ... Newsletter 1487
  - CSMPTX EXEC ... Newsletter 1487
  - CSMPX EXEC ... Newsletter 1409
  - debugging with TESTFOR ... Newsletter 1487
  - graphics drivers ... Newsletter 838
  - in VM/SP ... Newsletter 1409
  - interactive debugging ... Newsletter 1487
  - removal ... Newsletter 639
  - replacement ... Newsletter 617
  - Version 1 ... Newsletter 966, Newsletter 985
- CONTOUR.BLACKBOX ... Newsletter 787
- Contouring problems, interpolation of ... Newsletter 772
- Contouring program ... Newsletter 787
- Conversational Monitor System ... Newsletter (see VM/SP)
- Cost codes
  - charges to outdated codes transferred to overhead accounts ... Newsletter 1474, Newsletter 1679
  - transition period ... Newsletter 1679
- CP/M personal desktop computer used as a terminal ... Newsletter 1707
- CPU timing ... Newsletter 2044
- Cray UNICOS
  - managing program products ... Newsletter 2545
  - new CFT compiler available ... Newsletter 2545
  - standby batch service increased to weeknights ... Newsletter 2501
- Cray X-MP/14 high performance computer
  - Disspla Version 10.0 installed in UNICOS ... Newsletter 2501
  - DS-40 disk subsystem ... Newsletter 2598
  - increased UNICOS disk space ... Newsletter 2528
  - operating schedules for UNICOS ... Newsletter 2465
  - rates approved ... Newsletter 2466
  - selected ... Newsletter 2393
  - storage increases ... Newsletter 2610
  - TCP/IP access for testing ... Newsletter 2527
  - TCP/IP access to ... Newsletter 2568
  - test of IBM disks attached to ... Newsletter 2529
  - testing IBM 3380 disks ... Newsletter 2561
  - training plans ... Newsletter 2437
  - UNICOS 3.0 available ... Newsletter 2465
  - update ... Newsletter 2407, Newsletter 2437, Newsletter 2453, Newsletter 2465
  - VAX/VMS station available for general use ... Newsletter 2528
  - WAIT time charge suspended ... Newsletter 2528
- CRWTH ... Newsletter 2479, Newsletter 2559
- CSMP ... Newsletter (see Continuous System Modeling Program)
- CSMP EXEC calls translator and compiler CSMP program ... Newsletter 1409
- CSMPX EXEC executes CSMP program ... Newsletter 1409
- CUA statements not used in MVS ... Newsletter 1567
- Cuechart ... Newsletter (see Graphics)
  - available for user testing ... Newsletter 2120
  - using Apple LaserWriter ... Newsletter 2335
  - using 5835XP in CMS ... Newsletter 2439
  - Version 2.0 available for testing ... Newsletter 2232
  - Version 2.0 becomes production version ... Newsletter 2265
  - Version 2.1 ... Newsletter 2502
  - with Tellagraf 5.4 becomes production version ... Newsletter 2147
- CUECHART command ... Newsletter 2426
- Cuechart 1.0
  - available for testing ... Newsletter 1767
  - goes production ... Newsletter 1824
- Cuechart 2.0
  - PostScript output ... Newsletter 2226
- CUG, Installation Subcommittee in MVS Unit Test ... Newsletter 1407
- Cursor display, Tektronix terminals ... Newsletter 733
- Customer Information Control System ... Newsletter (see CICS)

Data communications
  computer-based training course available in CMS ... Newsletter 2424
Data Connection graphics package available for testing ... Newsletter 1861
Data Control Block cautions ... Newsletter 633
Data dictionary ... Newsletter 1943
Data entry
  for administrative systems ... Newsletter 2612
  services moving to Building 801 ... Newsletter 1565
Data inventory ... Newsletter 1335
Data Management
  at ANL ... Newsletter 1343
  disaster backup tapes ... Newsletter 2213, Newsletter 2214
  disk improvements in MVS ... Newsletter 1606
  NLCOPY utility upgraded ... Newsletter 1880
  revised manual available ... Newsletter 1550
  sharing datasets in Wylbur ... Newsletter 1881
  SLCOPY utility upgraded ... Newsletter 1880
  Summary ... Newsletter 967
  TAPECOPY Wylbur exec ... Newsletter 1880
  utility programs unavailable in MVS ... Newsletter 1618
  VAULTNL cataloged procedure ... Newsletter 2214
  VAULTSL cataloged procedure ... Newsletter 2214
Data migration
  current system streamlined ... Newsletter 1427, Newsletter 1433
  DA datasets on PERM migrated to offline tapes ... Newsletter 1542
  disk improvements in MVS ... Newsletter 1606
  IMPORT failures retry facility ... Newsletter 1143
  modifications in MVS complete ... Newsletter 1627
  offline datasets on tape life extended ... Newsletter 1542
  OFFLINE.DATASETS.ON.TAPE file ... Newsletter 1459
  old offline datasets moved to AMD tapes ... Newsletter 1459
  tape dump instructions ... Newsletter 1143
  to be RACF-protected ... Newsletter 2330
Data modeling ... Newsletter 1943
Data processing
  computer-based training (CBT) courses available in CMS ... Newsletter 2394
Data protection for tapes ... Newsletter 1464
Data security ... Newsletter (see RACF), Newsletter 2577
  adoption of procedures ... Newsletter 2609
  ANL computer protection plans ... Newsletter 2609
  disaster backup tape creation ... Newsletter 2214
  disaster backup tape storage ... Newsletter 2213
  inspection of areas for ANL compliance ... Newsletter 2609
  procedure for ... Newsletter 1109
  responsibility for protection of data ... Newsletter 1290
  VM/SP features to protect sensitive data ... Newsletter 1715
Data streaming
  installed on IBM 3033 computers ... Newsletter 2183
Database management systems ... Newsletter 1139, Newsletter 1239, Newsletter 1685, Newsletter (see Inquire Database Management System), Newsletter (see System 2000), Newsletter 1735, Newsletter 1744, Newsletter 1841, Newsletter 1936, Newsletter 1959, Newsletter 2017
Database storage ... Newsletter 1246, Newsletter 1262
  for Librarian datasets ... Newsletter 2031
  for RACF-protected datasets ... Newsletter 1776
  LISTPRIV replaces SDMLIST ... Newsletter 1835
  LISTPRIV reports on private regions ... Newsletter 1835
  MVS database disks ... Newsletter 1776, Newsletter 1832, Newsletter 1835
  new IBM 3330 volume DAT301 ... Newsletter 2031
Dataset access, shared or exclusive use ... Newsletter 1379
Dataset disposition, choosing parameters ... Newsletter 1379
Dataset management policies ... Newsletter 1379
Dataset names changed ... Newsletter 1652
DATASET statement
  CLASS parameter ... Newsletter 1647
Dataset types ... Newsletter 601
Datasets
  accessing read-only from Fortran programs in MVS batch ... Newsletter 2035
  accounting information to be removed in MVS ... Newsletter 1637
  allocations ... Newsletter 1130, Newsletter 1132
  avoiding uncataloged ... Newsletter 1618
  concatenation with unlike blocksizes ... Newsletter 2029
  empty ... Newsletter 1040
  enqueue problem resolution ... Newsletter 1743
  enqueue protection of ... Newsletter 1379
  I/O errors ... Newsletter 1040
  legalization of ... Newsletter 1336
  naming conventions ... Newsletter 1618
  obsolete ones to be deleted ... Newsletter 1373
  offline disks move to AMD tapes ... Newsletter 1459
  offline on tape ... Newsletter 1576, Newsletter 1596
  online public storage, reports of ... Newsletter 1616
  RACF protection available ... Newsletter 1776
  RACF protection plans ... Newsletter 1701
  RACF protection procedures ... Newsletter 1789
  recommended blocksizes for mixed storage classes ... Newsletter 1617, Newsletter 2061
  recommended blocksizes for typical ... Newsletter 1384, Newsletter 1617, Newsletter 2061
  recommended blocksizes in MVS batch ... Newsletter 2029, Newsletter 2410
  restore unavailable if RACF protected ... Newsletter 1776
  restored from backup tapes ... Newsletter 1277, Newsletter 1699
  scratch datasets in MVS batch ... Newsletter 2410
  to be checked for unauthorized uses ... Newsletter 1507
  use DISP=SHR,LABEL=(,,,IN) to read-only ... Newsletter 2035
Datatrieve
  computer-based training courses available in CMS ... Newsletter 2571
Datatrieve computer-based instruction available ... Newsletter 2519
DBase III
  classes for personal computer users ... Newsletter 2428
  procedure for upgrading to Version 1.1 ... Newsletter 2032
  recommendation ... Newsletter 2017
  user evaluation ... Newsletter 1959
DBase III Plus
  classes for personal computer users ... Newsletter 2428
  copy protection removed from ... Newsletter 2251
  procedure for purchasing ... Newsletter 2159, Newsletter 2251
  procedure for updating to ... Newsletter 2251
  procedure for upgrading to ... Newsletter 2159
DBase IV upgrades for IBM Personal Computer ... Newsletter 2613
DCB cautions ... Newsletter 633
DCOS ... Newsletter 489
DCOTAN ... Newsletter 489
DD cards, SYSOUT=P to be discontinued 2/5/79 ... Newsletter 1245
DD statement
  choice of DISP parameters ... Newsletter 1379
  output processing parameters ... Newsletter 1649
  SYSOUT class ... Newsletter 1647
DEALLOCATION
  KEPT ... Newsletter 763
DEALLOCATION, delete
  outcomes ... Newsletter 764
DEC LSI-11 computers
  maintenance and spare parts ... Newsletter 1453
DEC PDP-11 computers
  maintenance and spare parts ... Newsletter 1453
  RSX-11M documentation ... Newsletter 1453
DEC VAX-11/750 computer installed as gateway ... Newsletter 2071
DEC VT-125 B/W video graphics terminal ... Newsletter 1673
DEC VT200 ... Newsletter 1932
Decision Support Connection ... Newsletter 1861
Decision Support System ... Newsletter 1943
DECnet
  available Laboratory-wide ... Newsletter 2209
  greater access to Intergraph 200 CAE system ... Newsletter 2424
  installation of Laboratory-wide complete ... Newsletter 2360
  NJE service rates revised ... Newsletter 2584
  NJE services available to VAX ... Newsletter 2584
  sending electronic mail ... Newsletter 2210
  to be installed ... Newsletter 2140
Decus, new group for LSI-11 users formed ... Newsletter 1497
Denelcor HEP ... Newsletter 1863, Newsletter 1885, Newsletter 1955, Newsletter 2026
DENPLOT ... Newsletter 787
Density plotting program ... Newsletter 787
Dependent Job Control
  inquiry and modify commands ... Newsletter 1764, Newsletter 1765
  limitation ... Newsletter 581
  Proper use of DJC job-nets ... Newsletter 1765
DEST
  overriding ... Newsletter 1649
  parameter of FORMAT statement ... Newsletter 1648, Newsletter 1649
  selecting local 3800 and 1403 printers ... Newsletter 1648
DFN West German X.400 network ... Newsletter 2300
DFSORT
  available for testing in MVS batch ... Newsletter 2087, Newsletter 2293, Newsletter 2549
  fast copy program provided ... Newsletter 2598
Dial-up Service
  plan to discontinue 110 bps and 134.5 bps ... Newsletter 2237
Digital instrumentation
  planning being coordinated ... Newsletter 1453
Digital Instrumentation Group moves to Electronics ... Newsletter 1795
Digital Telecommunications System (DTS) plans to acquire ... Newsletter 1905
Director of Mathematics and Computer Science, search for ... Newsletter 2325
Disaster recovery
  administrative systems ... Newsletter 2247
  of all online user data ... Newsletter 2141
Discretionary computing program, for unused Batch time changed ... Newsletter 1417
Discretionary computing system changed ... Newsletter 1573
Disk
  acquisition ... Newsletter 2595
  data management improvements in MVS ... Newsletter 1606
  data migration modifications in MVS complete ... Newsletter 1627
  replacement ... Newsletter 2299
  usage reports ... Newsletter 1637
Disk space expanded in VAX/VMS ... Newsletter 2413

Disk storage
  batch disk generic names ... Newsletter 2061
  capacity increased ... Newsletter 1541, Newsletter 1645, Newsletter 1827
  charges revised ... Newsletter 1463
  dataset protection ... Newsletter (see RACF)
  efficient use of ... Newsletter 1617, Newsletter 2029
  IBM 3380 installation status ... Newsletter 2029, Newsletter 2061
  increased ... Newsletter 2610
  installation plans ... Newsletter 1827, Newsletter 1832
  MVS batch disk usage classes ... Newsletter 2061
  new IBM 3380 in MVS ... Newsletter 2029, Newsletter 2047
  plans for improving availability ... Newsletter 1525
  space allocation by block ... Newsletter 2029, Newsletter 2061
  track and cylinder capacity ... Newsletter 2029, Newsletter 2061
  track utilization ... Newsletter 1617, Newsletter 2029, Newsletter 2061
  3380 installation status ... Newsletter 1832
Disks
  attached to Cray X-MP/14 ... Newsletter 2529
  damaged ... Newsletter 1289
  IBM 3350 disks replaced by IBM 3380 disks in MVS ... Newsletter 2061
  Itel ... Newsletter 1224
  moving user datasets ... Newsletter 2343
  new IBM 3380 storage in MVS ... Newsletter 2029, Newsletter 2047, Newsletter 2410
  new 3330-11 drives added ... Newsletter 1541
  preparation for phased replacement ... Newsletter 2343
  replacement ... Newsletter 2343, Newsletter 2410
  restoration of ... Newsletter 1289
  SASCR volume serial numbers changing ... Newsletter 2410
  separating batch scratch datasets ... Newsletter 2410
  TSPERM being replaced ... Newsletter 2343
  user backup of ... Newsletter 968
  3380 disks to replace 3330 SASCR ... Newsletter 2410
DISLIB/OPT Disspla library ... Newsletter 2426
DISP parameters, for updating datasets ... Newsletter 1379
DISP=OLD cautions ... Newsletter 669
DISP=SHR cautions ... Newsletter 669
Dispatching priority ... Newsletter 509
Display Management System (DMS) available ... Newsletter 1791
DisplayWrite/370
  computer-based training course available in CMS ... Newsletter 2479
Disposition, choice of parameters for updating datasets ... Newsletter 1379
Disspla ... Newsletter 1254, Newsletter 1358
  accessing font file FT76F001 ... Newsletter 2035
  available on the central VAX 8700 ... Newsletter 2426
  datasets ... Newsletter 2035
  LOGO routine revised ... Newsletter 1402
  Matrix camera services ... Newsletter 2045
  new Argonne logo available ... Newsletter 1934
  postprocessor available for testing ... Newsletter 2121
  postprocessor available for user testing ... Newsletter 2090
  postprocessor becomes production ... Newsletter 2148
  production version upgrade delayed ... Newsletter 1412
  subroutines changed by LOGO routine ... Newsletter 1402
  translate tables changing ... Newsletter 2344
  using Apple LaserWriter ... Newsletter 2335
  using 5835XP in CMS ... Newsletter 2439
  using 5835XP in MVS ... Newsletter 2440
  using 5835XP in VAX/VMS ... Newsletter 2439
  Version 10.0 installed in Cray UNICOS ... Newsletter 2501
Disspla 10.0
  available for testing in VM/SP and MVS Batch ... Newsletter 2120
  becomes production version in CMS and MVS Batch ... Newsletter 2147
  PostScript output ... Newsletter 2226
Disspla 10.5
  available for user testing in CMS ... Newsletter 2502
  available for user testing in MVS ... Newsletter 2529
Disspla 8.0 ... Newsletter 1371
Disspla 8.2 ... Newsletter 1716
  documentation ... Newsletter 1431
  manual updates available ... Newsletter 1413
Disspla 9.0
  available for user testing ... Newsletter 1662
  becomes production version ... Newsletter 1716
  documentation ... Newsletter 1716
  incompatible with Fortran H ... Newsletter 1779
  increased linkedit SIZE requirements ... Newsletter 1781
  local modification allows alternate Fortran unit numbers ... Newsletter 1754
DISSPOP
  exec ... Newsletter 2148
  postprocessor ... Newsletter 2090
Distributed Array Processor (DAP) ... Newsletter 2478
Distributed computing
  documentation for RSX-11M ... Newsletter 1496
  FNC Project update ... Newsletter 1495, Newsletter 1535
  LSI-11 users group formed ... Newsletter 1497
  questionnaire results ... Newsletter 1377
DJC ... Newsletter (see Dependent Job Control)
DOCUMENT exec ... Newsletter 2080
Documentation
  available for VAX computers ... Newsletter 2375
  batch utilities document available ... Newsletter 1543
  distribution counter relocated ... Newsletter 1843
  divisions will be charged for ... Newsletter 1464
  for batch utilities available online ... Newsletter 1559
  for minicomputers running RSX-11M ... Newsletter 1496
  information available online ... Newsletter 2080
  personal desktop computing document available ... Newsletter 1762
  recently updated and published ... Newsletter 1850, Newsletter 1892, Newsletter 1910, Newsletter 1935, Newsletter 1947, Newsletter 1998, Newsletter 2011, Newsletter 2043, Newsletter 2081, Newsletter 2090, Newsletter 2099, Newsletter 2124, Newsletter 2163, Newsletter 2172, Newsletter 2193, Newsletter 2217, Newsletter 2238, Newsletter 2254, Newsletter 2269, Newsletter 2296, Newsletter 2317, Newsletter 2337, Newsletter 2351, Newsletter 2376, Newsletter 2400, Newsletter 2409, Newsletter 2445, Newsletter 2458, Newsletter 2480, Newsletter 2492, Newsletter 2505, Newsletter 2537, Newsletter 2551, Newsletter 2588, Newsletter 2600, Newsletter 2617
  recommended documentation manual available ... Newsletter 1543
  revised computing manuals available ... Newsletter 1657
  Script manuals available ... Newsletter 1486
  UNICOS document available ... Newsletter 2518
  VM/SP translate tables error ... Newsletter 1487
  1980 publications ... Newsletter 1431
DOEMETC ... Newsletter 1997
DREBS ... Newsletter 1346
DROMB AMDLIB routine, updated ... Newsletter 1424
DSCB (model) (mis)use of ... Newsletter 826
DSORGN=UN datasets ... Newsletter 1347
DTAN/DCOT AMDLIB routine modified ... Newsletter 1404
Dump formatting, new ... Newsletter 1018
Dynamic task reordering ... Newsletter 510

E format, in Tellagraf ... Newsletter 1380
EARN ... Newsletter (see European Academic Research Network
EBCDIC to ASCII translation ... Newsletter 2344, Newsletter 2371
EDIT
  editor ... Newsletter 1053
  subcommands ... Newsletter 695
EISPAC, new version ... Newsletter 851
EISPACK
  QZIT,QZVAL improved ... Newsletter 997
  routines updated ... Newsletter 1019
EISPACK 2 added to AMDLIB ... Newsletter 815
Electronic mail ... Newsletter (see Gateways to other networks)
  addresses added to ANLPHONE ... Newsletter 1750
  addresses in ANLPHONE ... Newsletter 1879, Newsletter 2301
  addresses in Personnel database ... Newsletter 1879
  anonymous notes ... Newsletter 1868
  between ANL and BITnet ... Newsletter 1831, Newsletter 1857, Newsletter 2155
  between Argonne file transfer network and Laboratory-wide DECnet ... Newsletter 2210
  between BITnet and ARPAnet and MAILnet ... Newsletter 1991
  between BITnet and Laboratory-wide DECnet ... Newsletter 2210
  between CMS and BITnet ... Newsletter 1869
  between VAX/VMS and IBM VM/SP ... Newsletter 1703
  between VM/SP, MVS, and VAX/VMS ... Newsletter 2122
  compatibility with non-VM/SP systems ... Newsletter 1869
  consulting ... Newsletter 2543
  creating nickname files ... Newsletter 1725
  developments in ... Newsletter 2093, Newsletter 2108
  discussion groups available on BITnet ... Newsletter 2532
  distribution lists ... Newsletter 1725
  in PROFS ... Newsletter 1739
  including sender's and recipient's names in NOTE headers ... Newsletter 1868
  mathematical software available ... Newsletter 2105
  measuring use at ANL ... Newsletter 1870
  NBI OASys mail ... Newsletter 2299
  VAX NJE enhanced ... Newsletter 2315
  VM/SP document published ... Newsletter 1741
  VM/SP2 CMS commands ... Newsletter 1704, Newsletter 1725
  VMSCHEDULE to read or forward ... Newsletter 2089
  ZMAIL to be removed from Z-disk ... Newsletter 1704
Electronic Office Workstation Coordinator ... Newsletter (see Office automation)
Electronic publishing
  Texet ... Newsletter 2478
Electronic worksheet programs, benefits of ... Newsletter 1706
Electronic Workstation Evaluation and Demonstration Room open ... Newsletter 1888
Encore Multimax computer ... Newsletter 2129
Enqueue lists, protection of datasets by ... Newsletter 1379
Enrollment procedures (VM/SP, Wylbur, and Batch) revised ... Newsletter 1875
EQN ... Newsletter 2316
ESPLOT3 ... Newsletter 638, Newsletter 801
  supported in VM/SP by Graphics 1.2 ... Newsletter 1419
European Academic Research Network (EARN) ... Newsletter 1927
EVE computer-based instruction available ... Newsletter 2519
Exceptional jobs
  approved procedure for running ... Newsletter 1475
  scheduling ... Newsletter 1475
EXEC 2
  removes limitations in EXEC ... Newsletter 1534
Execution error messages (Fortran) ... Newsletter 714

- Expectation scheduling in MVS ... Newsletter 1604
- Expert systems
  - course in prolog and basic tools ... Newsletter 2453
- EXPORT
  - cataloged procedure ... Newsletter 968, Newsletter 973
  - demand ... Newsletter 968, Newsletter 973
  - failures ... Newsletter 979
- Export station to be shut down ... Newsletter 2216
- EXPRESS
  - changes ... Newsletter 1242, Newsletter 1227
  - limits ... Newsletter 975
- External Program Connection ... Newsletter 1861
- Ezpert
  - course ... Newsletter 1242, Newsletter 1253, Newsletter 1276
  - new release ... Newsletter 1253, Newsletter 1242, Newsletter 1265
  - Version 5.5 installed ... Newsletter 2497
- Ezpert Graphics System ... Newsletter 743, Newsletter 837, Newsletter 1018, Newsletter 1024
  - new release ... Newsletter 1242

- FETCH command
  - failures ... Newsletter 2498
  - SYSOUT Class W ... Newsletter 1647
  - to view MVS batch output ... Newsletter 1607
- Fiche ... Newsletter (see Microfiche printer support)
- Fiche log tracks fiche output ... Newsletter 1479
- FILCON command ... Newsletter 1861, Newsletter 2426
- File Connection ... Newsletter 1861
- File transfer ... Newsletter (see Office automation)
  - addresses in Argonne file transfer network ... Newsletter 1879
  - Apple II personal computer ... Newsletter 1909
  - BITnet network ... Newsletter 1831, Newsletter 1857
  - Kermit 2.29B now available ... Newsletter 2386
  - over local area networks ... Newsletter 2158
  - personal computers ... Newsletter 1594, Newsletter 1707, Newsletter 1852, Newsletter 2158
  - to connect RADS stations to Apple LaserWriters ... Newsletter 2226
  - to other networks from Wylbur ... Newsletter 2089
  - VAX/VMS NJE network ... Newsletter 1705
- Film changes (color) ... Newsletter 1230, Newsletter 1661, Newsletter 1769, Newsletter 1778, Newsletter 2032
- Film developing schedule
  - 5/83 ... Newsletter 1769
  - 5/85 ... Newsletter 2032
  - 6/82 ... Newsletter 1661
- Film developing schedule 7/88 ... Newsletter 2529
- Financial Application Committee to Effect Telesis (FACET) ... Newsletter 1943
- Financial Management System (FMS) ... Newsletter 2189, Newsletter 2559
  - fiscal year closing ... Newsletter 2578
  - See Laboratory-Wide Administrative Database (LADB) ... Newsletter 1547
- FINDADDR
  - VM/SP Y-disk EXEC ... Newsletter 1419
- FINDMODE
  - VM/SP Y-disk EXEC ... Newsletter 1419
- Floating point numbers, E format input in Tellagraf ... Newsletter 1380
- Floors replaced by incentive plan ... Newsletter 2607
- FNC
  - Project ... Newsletter (see Friendly Neighborhood Computer Project)
- Focus
  - computer-based training courses available in CMS ... Newsletter 2479
- FORMAT statement
  - default (no DDNAME) ... Newsletter 1649
  - JES3 and ASP differences ... Newsletter 1649
  - overriding parameters ... Newsletter 1649
  - overriding SYSOUT class ... Newsletter 1647
- Forms
  - printing nonstandard ... Newsletter 2107
- FORTHX EXEC command, to access Fortran H Extended Compiler in CMS ... Newsletter 1411
- Fortran
  - accessing RACF-protected datasets ... Newsletter 2035
  - accessing read-only datasets in MVS batch ... Newsletter 2035
  - accessing system datasets from ... Newsletter 2035
  - converting VS Fortran load modules to Release 4 library ... Newsletter 2190
  - execution error messages ... Newsletter 714
  - Fortran H Extended (Enhanced) Compiler (Version 1.3.0) becomes production in CMS and MVS batch ... Newsletter 1960
  - from PL/I ... Newsletter 942
  - I/O track-overflow problems ... Newsletter 1179
  - IBM VS Fortran becomes production ... Newsletter 1834
  - Interactive Debug ... Newsletter 1344
  - Interactive Debug (Testfort) becomes production ... Newsletter 1836
  - Mod II Library ... Newsletter 809, Newsletter 825, Newsletter 850, Newsletter 851, Newsletter 1015
  - Mod II Library updated ... Newsletter 1392, Newsletter 1411
  - MORTRAN preprocessor ... Newsletter 712
  - new features in IBM VS Fortran Release 4.1 ... Newsletter 2160, Newsletter 2191
  - problems ... Newsletter 1250
  - read-only tape access from ... Newsletter 2035
  - recommended blocksize for VBS datasets ... Newsletter 2029, Newsletter 2061
  - users urged to use VS Fortran ... Newsletter 1804
  - VS compiler and library (Release 3) available for testing in MVS batch ... Newsletter 1814
  - VS compiler and library (Release 4.1) available for testing in MVS batch ... Newsletter 2132
  - VS compiler and library (Release 4.1) becomes production version in CMS and MVS batch ... Newsletter 2160, Newsletter 2190
  - VS compiler and library (Version 3) available for testing in CMS ... Newsletter 1792
  - VS compiler and library available for testing in CMS ... Newsletter 1726, Newsletter 2075
  - VS compiler and library available for testing in MVS batch ... Newsletter 1734
  - VS Fortran (Release 3) becomes production ... Newsletter 1834
  - VS Fortran (Version 1.3.1) becomes production version in CMS and MVS batch ... Newsletter 1959
  - VS Fortran Release 4 defaults to load mode ... Newsletter 2191
  - VS Fortran Release 4 library incompatible with previous versions ... Newsletter 2190
- Fortran G
  - available only in OS/MVT ... Newsletter 1593
- Fortran G Compiler
  - procedure for replacement by G1 ... Newsletter 1422
- Fortran G1 Compiler
  - modified ... Newsletter 1265
  - new level available ... Newsletter 1162
  - TEST option of ... Newsletter 1422, Newsletter 1836
- Fortran H Compiler
  - available only in OS/MVT ... Newsletter 1658
  - incompatible with Disspla 9.0 ... Newsletter 1779
  - procedure for replacement by H Extended ... Newsletter 1422
  - report on code optimization ... Newsletter 1162
  - to be phased out ... Newsletter 1422
- Fortran H Extended (Enhanced) Compiler ... Newsletter 1365, Newsletter 1632
- Fortran H Extended Compiler ... Newsletter 618, Newsletter 712, Newsletter 850, Newsletter 966
  - has own CMS minidisk ... Newsletter 1411
  - report on code optimization ... Newsletter 1162
  - updated ... Newsletter 809, Newsletter 825, Newsletter 1015, Newsletter 1131, Newsletter 1392
- Fortran Interactive Debug ... Newsletter (see Testfort)
- Fortran 77 standard ... Newsletter (see VS Fortran)
- Fortran 8x ... Newsletter 2421
- FORTX450 ... Newsletter 966
- Friendly Neighborhood Computer Project ... Newsletter (see Argonne NJE Network), Newsletter (see Argonne NJE network)
  - communications plan ... Newsletter 1495
  - graphics plan ... Newsletter 1465
  - maintenance only plan ... Newsletter 1582
  - original project plan ... Newsletter 1325
  - survey results ... Newsletter 1377
- FR80
  - slide mounting and negative film available ... Newsletter 1778
  - 105mm camera, support by Graphics 1.2 ... Newsletter 1419
  - 105mm film charges ... Newsletter 1408
  - 35mm color output improved ... Newsletter 1744
- Full screen terminals
  - alternative configurations ... Newsletter 2429
  - emulation available at extension 2-3270 ... Newsletter 2443
  - recommended ... Newsletter 1821
- FUNPACK II
  - added to AMDLIB ... Newsletter 996
  - test version ... Newsletter 891
- FUTURA, in LOGO routine ... Newsletter 1402

- Gateways
  - between Argonne and NMFEnet ... Newsletter 2005
  - between MFEnet and BITnet ... Newsletter 2155
  - between personal computer local area networks ... Newsletter 2158
  - DFN network ... Newsletter 2300
  - PHYSnet ... Newsletter 2300
  - to other networks ... Newsletter 2089, Newsletter 2155
  - X.400 European no longer available ... Newsletter 2249
- GAUSS ... Newsletter 588
  - updated ... Newsletter 1083
- GCPOSR ... Newsletter 489
- GEAR ... Newsletter 777
- GEARDV ... Newsletter 777
- Generalized Markup Language ... Newsletter (see GML)
- Generic names (obsolete) ... Newsletter 2072
- GKSLIB/OPT GKS library ... Newsletter 2426
- GML
  - to replace Syspub ... Newsletter 2192, Newsletter 2215, Newsletter 2253, Newsletter 2336
- Graphic Arts Users Group
  - established ... Newsletter 1917
- Graphic Output Mail Delivery ... Newsletter 565

Graphics
- accessing CMS minidisk ... Newsletter 1396
- ANL drivers to be phased out ... Newsletter 2044
- ANLDIR Cuechart directory ... Newsletter 1853, Newsletter 2161
- Argonne logo, specifying size and position for ... Newsletter 1485
- BLOWUP and STACK3 features available on color plotter ... Newsletter 2489
- CalComp pen plotter (last one) decommissioned ... Newsletter 2503
- CalComp 936 charges corrected ... Newsletter 1408
- charge rate changes proposed ... Newsletter 1493
- color plotter to be acquired ... Newsletter 2407
- computer strategy ... Newsletter 2359
- computer-generated available through Graphic Arts ... Newsletter 1843
- Cuechart exec modified for full screen users ... Newsletter 1921
- Cuechart local stencil directory ... Newsletter 1853, Newsletter 2161
- Cuechart user-contributed stencils ... Newsletter 1853
- Cuechart 1.0 available for testing ... Newsletter 1767
- Cuechart 1.0 goes production ... Newsletter 1824
- Cuechart 2.0 available for testing ... Newsletter 2232
- Cuechart 2.0 becomes production version ... Newsletter 2265
- Data Connection package available for testing ... Newsletter 1861
- debugging aids ... Newsletter 1355
- Disspla ... Newsletter 1254, Newsletter 1354, Newsletter 1358, Newsletter 1371, Newsletter 1396, Newsletter 1402
- Disspla software available on the central VAX 8700 ... Newsletter 2426
- Disspla 10.0 available for testing ... Newsletter 2120
- Disspla 10.0 becomes production version ... Newsletter 2147
- Disspla 10.0 installed in Cray UNICOS ... Newsletter 2501
- Disspla 10.5 available for testing ... Newsletter 2502, Newsletter 2529
- Disspla 8.2 ... Newsletter 1431, Newsletter 1716
- Disspla 9.0 available for user testing ... Newsletter 1662
- Disspla 9.0 becomes production version ... Newsletter 1716
- Disspla 9.0 modification allows alternate Fortran unit numbers ... Newsletter 1754
- driver (IBM 3279) available ... Newsletter 1767
- drivers (VT-125 and HP 7470A) available ... Newsletter 1673
- Ezpert ... Newsletter 743, Newsletter 837, Newsletter 961, Newsletter 1018
- film changes (color) ... Newsletter 1230, Newsletter 1778
- film development schedule revised ... Newsletter 1486
- FR80 105mm film charges ... Newsletter 1408
- FR80 35mm color output improved ... Newsletter 1744
- full-frame slide camera ... Newsletter 1948
- future directions in Computing Services ... Newsletter 2044
- Graphics 1.2 ... Newsletter 1431, Newsletter 1438
- G1DATA conversion to CA/ISSCO metafiles available ... Newsletter 2503
- HELP available in VM/SP ... Newsletter 1467, Newsletter 1651
- ISSCO metafiles with SAS/Graph in SAS 5 ... Newsletter 2281, Newsletter 2282, Newsletter 2283
- large color plotter acquisition ... Newsletter 2313
- Matrix camera available for Disspla users ... Newsletter 2045
- Matrix camera charging ... Newsletter 1998
- Matrix camera features ... Newsletter 2045
- metafile conversion to CA/ISSCO available ... Newsletter 2503
- MVS conversion ... Newsletter 1505
- negatives available from Matrix camera ... Newsletter 2489
- plans to install Grapheasy ... Newsletter 2332
- SAS/Graph available in CMS ... Newsletter 2046
- SAS/Graph option to expire ... Newsletter 1675
- SAS/Graph Version 5 available for testing in CMS ... Newsletter 2281
- SAS/Graph Version 5 available for testing in MVS batch ... Newsletter 2281
- SAS/Graph Version 5 in CMS ... Newsletter 2282
- SAS/Graph Version 5 in MVS batch ... Newsletter 2283
- slide mounting and negative film available ... Newsletter 1778
- split plot occurrence reduced ... Newsletter 1597
- SuperImage software for personal computers ... Newsletter 2546
- SuperImage/SuperChart software for personal computers ... Newsletter 2456
- Support for VAX/VMS systems ... Newsletter 1465
- SURFACE II contouring package ... Newsletter 1478
- Tellagraf ... Newsletter 1354, Newsletter 1372, Newsletter 1380, Newsletter 1396, Newsletter 1431, Newsletter 1484, Newsletter 1651
- Tellagraf software available on the central VAX 8700 ... Newsletter 2426
- Tellagraf 3.1 will not be production version ... Newsletter 1498
- Tellagraf 4.0 becomes production version ... Newsletter 1587
- Tellagraf 4.1 available for testing ... Newsletter 1716, Newsletter 1792
- Tellagraf 4.1 color table ... Newsletter 1779
- Tellagraf 4.5 available for testing ... Newsletter 1835
- Tellagraf 4.5 becomes production version ... Newsletter 1878
- Tellagraf 5.0 ... Newsletter 1998, Newsletter 2044
- Tellagraf 5.4 available for testing ... Newsletter 2118
- Tellagraf 5.4 becomes production version ... Newsletter 2146
- Tellagraf 6.0 available for testing ... Newsletter 2233
- Tellagraf 6.0 becomes production version ... Newsletter 2266
- Tellagraf 6.1 available for testing ... Newsletter 2502
- terminal emulation program for IBM Personal Computer ... Newsletter 1946
- using Apple LaserWriter ... Newsletter 2335
- Versatec decommissioning planned ... Newsletter 2503
- Versatec plotter ... Newsletter 1268, Newsletter 1279
- viewgraphs available from Matrix camera ... Newsletter 2489
- VM/SP batch exec job conversion to MVS-format JOB card ... Newsletter 1591
- Wylbur graphics drivers at high baud rates ... Newsletter 1778
- Wylbur graphics drivers for ISSCO metafiles ... Newsletter 2183

Graphics devices
- Versatec use for debugging ... Newsletter 1397

Graphics 1.2
- becomes production version ... Newsletter 1438
- documentation ... Newsletter 1431
- enhancement of Slides package ... Newsletter 1419
- IBM 3277 graphics device drivers ... Newsletter 1478
- not available in TSO ... Newsletter 1419
- page positioning and scaling facilities ... Newsletter 1419
- procedures for accessing test versions ... Newsletter 1419
- support of crosshair cursor input ... Newsletter 1419
- support of ESPLOT in VM/SP ... Newsletter 1419
- support of full-frame 35mm slides ... Newsletter 1478
- support of pen-position input ... Newsletter 1419
- test version available ... Newsletter 1419

GUIDE publications available in Central Library ... Newsletter 1929

GUIDE TO COMPUTING AT ANL ... Newsletter 1343

GUIDE TO PERSONAL DESKTOP COMPUTING AT ANL ... Newsletter 1762

G1DATA
- metafile conversion to CA/ISSCO available ... Newsletter 2503

HEIGHT, in LOGO routine ... Newsletter 1402

HELP
- expanded VM/SP facility ... Newsletter 1394
- for AMDLIB available ... Newsletter 1551
- for Directory Maintenance Program ... Newsletter 1428
- for graphics in VM/SP ... Newsletter 1467
- for OBS Wylbur ... Newsletter 1437, Newsletter 1792
- for Wylbur execs ... Newsletter 1520
- for Wylbur information topics ... Newsletter 1520
- Wylbur online command improvements ... Newsletter 1763

HELP EXECS
- for Wylbur public execs ... Newsletter 1468, Newsletter 1520

HELP WYLBUR command
- for VM/SP Wylbur test version ... Newsletter 1418

Hewlett-Packard
- model 7470A desktop pen plotter ... Newsletter 1673
- terminals, cursor display ... Newsletter 1419

HEX statistics
- Computer Center Use table revised ... Newsletter 1413
- revision ... Newsletter 1335, Newsletter 1180

High performance computer
- plans to acquire ... 2225
- selected ... Newsletter 2393

HISTOR batch cataloged procedure ... Newsletter 2387

Historian
- HISTOR batch cataloged procedure ... Newsletter 2387
- Release 4.2 available in MVS batch ... Newsletter 2387
- Release 4.2 files ... Newsletter 2387
- source code maintenance program Release 4.0 available ... Newsletter 1995

HIST3D ... Newsletter 758

Holiday schedule
- 1982 ... Newsletter 1700, Newsletter 1717
- 1983 ... Newsletter 1839
- 1984 ... Newsletter 1957, Newsletter 1971
- 1985 ... Newsletter 2106
- 1986 ... Newsletter 2115
- 1987 ... Newsletter 2290

Human Resource System (HRS)
- See Laboratory-Wide Administrative Database (LADB) ... Newsletter 1547

- Hydra Protocol Converter ... Newsletter 2429
  - available as IBM full screen emulator ... Newsletter 2570
  - available for testing ... Newsletter 2411, Newsletter 2412, Newsletter 2532
  - available offsite at 2400 baud ... Newsletter 2490
  - goes production ... Newsletter 2443
  - Insert options poll ... Newsletter 2572
  - new terminal selection menu ... Newsletter 2532

- I/O
  - AMD services reduced on off-prime shifts ... Newsletter 1513
  - dataset errors ... Newsletter 1040
  - errors ... Newsletter 1249
  - problems with track overflow and chained scheduling ... Newsletter 1356
  - tape error message changes ... Newsletter 1023, Newsletter 1064
  - tape error recovery ... Newsletter 1023, Newsletter 1064
  - transient problems ... Newsletter 1241
- IBM BASIC now available in CMS ... Newsletter 1811
- IBM Personal Computer
  - Base SAS ... Newsletter 2399
  - color graphics monitor difficulty ... Newsletter 2285
  - configurations ... Newsletter 2399
  - DBase III recommendation ... Newsletter 2017
  - dBASE III user evaluation ... Newsletter 1959
  - DBase IV upgrades ... Newsletter 2613
  - deadline for ordering ... Newsletter 1922
  - discount contract with University of Chicago ... Newsletter 1879
  - disk drive in stock ... Newsletter 2187
  - file transfer to CMS ... Newsletter 1852
  - in stock ... Newsletter 2008
  - Kedit full screen editor available for ... Newsletter 2235
  - Kermit file transfer program ... Newsletter 1852
  - local area network recommendations ... Newsletter 2158
  - Model PC-AT faulty electronic component ... Newsletter 2080
  - NCSA Telnet program available for ... Newsletter 2615
  - new Kermit diskettes available for ... Newsletter 2427
  - new recommended configuration in stock ... Newsletter 2202
  - new version of Kermit available ... Newsletter 2087
  - NMFECC diskette available ... Newsletter 2188
  - onsite maintenance of ... Newsletter 1869
  - purchase agreement ... Newsletter 1857
  - recommended configuration in stock ... Newsletter 2113
  - recommended Ethernet boards for ... Newsletter 2537
  - recommended modems ... Newsletter 1875
  - SAS/Stat ... Newsletter 2399
  - SuperImage/SuperChart graphics software ... Newsletter 2456
  - terminal emulation ... Newsletter 2306, Newsletter 2411
  - used as a terminal ... Newsletter 1659
  - used as a terminal simulated as IBM 3270 ... Newsletter 1891, Newsletter 2235
  - Word recommended for ... Newsletter 2385
  - 3.5 inch disk drive for ... Newsletter 2285
- IBM Personal System/2 available for testing ... Newsletter 2385
- IBM Professional Office System ... Newsletter (see PROFS)
- IBM 3033
  - Data streaming installed ... Newsletter 2183
  - red machine memory to be expanded ... Newsletter 1547
  - Replacement Committee recommendations ... Newsletter 2595
  - replacement planning initiated ... Newsletter 2453
  - task force membership ... Newsletter 2453
- IBM 3042 attached processor
  - addition of ... Newsletter 1897
  - installation of ... Newsletter 1911
  - installed ... Newsletter 1905
- IBM 3180 terminal ... Newsletter 2098
- IBM 3270 Protocol Converter ... Newsletter 2429
  - available for testing ... Newsletter 2411
- IBM 3277 terminals
  - cluster controller support ... Newsletter 1518
  - Display Editing System for ... Newsletter 1417
  - Hydra Protocol Converter emulation ... Newsletter 2411
  - one installed for user testing ... Newsletter 1417
  - Wylbur program function keys for ... Newsletter 1438, Newsletter 1446
- IBM 3279 color video graphics terminal available ... Newsletter 1767
- IBM 3380 disks ... Newsletter (see 3380 disks)
  - testing on Cray X-MP/14 ... Newsletter 2561
- IBM 370/195
  - preventive maintenance schedule changed ... Newsletter 1423
  - to be decommissioned on 1/2/85 ... Newsletter 1984
- IBM 3800 laser printer
  - TN 15 character set ... Newsletter 2344
  - translate tables changing ... Newsletter 2344
- IBM 3800 Page Printer ... Newsletter 1261
  - administrative computing impact ... Newsletter 1639
  - ASP //*FORMAT cards ... Newsletter 1198
  - lined output available ... Newsletter 1790
- IBM 6670 Document Distributor
  - test in progress ... Newsletter 1383
- ICEGENER
  - new alternative for IEBGENER ... Newsletter 2598
- ICSSCU ... Newsletter 1358
- ICUSER
  - computer-based training course available in CMS ... Newsletter 2479
- IDR records ... Newsletter 505
- IEBCOPY ... Newsletter 1593
  - VS version ... Newsletter 628
  - VSCOPY renamed IEBCOPY ... Newsletter 1593
- IEBGENER
  - ICEGENER new alternative for ... Newsletter 2598
  - larger region required in MVS 1.3.5 ... Newsletter 2185
- IEHDASDR ... Newsletter 668, Newsletter 678, Newsletter 969
- IEH2411 messages ... Newsletter 543
- IFPS
  - computer-based training course available in CMS ... Newsletter 2479
- IFS ... Newsletter (see Integrated Financial System)
- IHC240 Fortran messages ... Newsletter 714
- ILC (interlanguage communication, PL/I) ... Newsletter 942
- IMPORT
  - automatic ... Newsletter 973
  - catalog procedure ... Newsletter 737
  - increased ... Newsletter 872
- IMSL library
  - available to Watfiv in MVS batch ... Newsletter 2204
  - changes ... Newsletter 1652
  - Converting to Edition 10.0 ... Newsletter 2565
  - dataset name changed ... Newsletter 1652
  - Edition 10.0 available in UNICOS ... Newsletter 2563
  - Edition 6 ... Newsletter 1083
  - Edition 7 ... Newsletter 1326, Newsletter 1346
  - Edition 9 available for testing ... Newsletter 1780
  - Edition 9.2 available for testing ... Newsletter 2162
  - guidelines for using ... Newsletter 1589
  - IMSL Edition 10.0 compatibility with IMSL on other ANL systems ... Newsletter 2564
  - routines updated ... Newsletter 1008
  - updated to Edition 7.1 ... Newsletter 1405
  - updated to Edition 8 ... Newsletter 1449, Newsletter 1457
  - updated to Edition 9 ... Newsletter 1949
  - Updated to Edition 9.2 ... Newsletter 2268
- Index
  - monthly cumulative NEWSLETTER ... Newsletter 2108, Newsletter 2280, Newsletter 2446
  - monthly cumulative NEWSLETTER to be discontinued ... Newsletter 1844
  - NEWSLETTER and user documents available ... Newsletter 1773, Newsletter 2048
- INDEXER ... Newsletter 972, Newsletter 1017
- Indexing programs ... Newsletter 972, Newsletter 1017
- Information Expert (IE) ... Newsletter 2407
- InFoToGo graphics terminal emulation program for IBM Personal Computer ... Newsletter 1946
- Inquire Database Management System ... Newsletter 1139, Newsletter 1239
  - now available in VM/SP ... Newsletter 1685
  - Release 12 available for testing in VM/SP ... Newsletter 1735
  - Release 12 becomes production version in VM/SP 3/7/83 ... Newsletter 1744
  - Release 13.1 available for testing in VM/SP ... Newsletter 1841
  - Release 13.3 becomes production version in VM/SP and batch 9/10/84 ... Newsletter 1936
  - Release 13.3 replaces Release 13.1 as test version ... Newsletter 1893
  - Release 87.1 available for testing in CMS ... Newsletter 2597
- Integrated Financial System (IFS) ... Newsletter 1943, Newsletter 2559
  - education schedule ... Newsletter 2611
  - FY1989 implementation milestones ... Newsletter 2558
  - modeling capabilities ... Newsletter 2186
  - MSA selected as vendor ... Newsletter 2407
  - project status ... Newsletter 2053, Newsletter 2262
  - update ... Newsletter 2578, Newsletter 2596
- Interactive Services ... Newsletter (see Wylbur and VM/SP)
  - Tymnet network connection ... Newsletter 1554
- Interactive systems
  - procedure for reporting problems ... Newsletter 1408
  - terminal messages revised ... Newsletter 1468
- Intergraph CAE system
  - available network connections for ... Newsletter 2424
- International Atomic Energy Agency (IAEA) network ... Newsletter 2572
- Internet
  - conversion to domain names ... Newsletter 2568
- INTSTY Tektronix routine added ... Newsletter 706
- ISPF
  - computer-based training course available in CMS ... Newsletter 2479
- ISSCO graphics metafile from ANSYS ... Newsletter 2293
- ISSCO metafiles, producing graphics output from
  - PBLOWUP ... 2122
  - PCAL580 ... 2122
  - PCAL780 ... 2122
  - PCAL936 ... 2122
  - PDS35BW ... 2122
  - PDS35CLR ... 2122
  - PMATRIX ... 2122
  - PPRINTER ... 2122
  - PPS ... Newsletter 2229
  - PSPCAL78 ... 2122
  - PSPU35BW ... 2122
  - PSPVERS1 ... 2122
  - PSPXEROX ... 2122
  - PS16BW ... 2122
  - PS16CLR ... 2122
  - PS35BW ... 2122
  - PS35CLR ... 2122
  - PU105BW ... 2122
  - PU35BW ... 2122
  - PVERS11 ... 2122
  - PXEROX ... 2122
- Itel disks
  - acceptance testing completed ... Newsletter 1224
  - equipment removal ... Newsletter 2456

- ITIME
  - routine now in SYS1.AMDLIB ... Newsletter 1404
  - timing subroutine now in AMDLIB in CMS ... Newsletter 2044

- JES3
  - batch operating system to be upgraded to JES3 1.3.4 ... Newsletter 2041, Newsletter 2086, Newsletter 2144, Newsletter 2156
  - batch operating system upgraded ... Newsletter 1737
  - controlling SYSOUT processing ... Newsletter 1649
  - DJC job-nets (//*NET) ... Newsletter (see Dependent Job Control
  - maintenance and testing ... Newsletter 1714
  - output processing defaults ... Newsletter 1649
  - RADS/RJP line limits ... Newsletter 1657
  - selected operator commands available in Wylbur ... Newsletter 1764
  - some MVS FORMS names changing ... Newsletter 2583
  - user test in batch on 1/10/83 ... Newsletter 1737
  - user test in Wylbur and MVS batch on 4/14/86 ... Newsletter 2173
- JES3 differences from ASP
  - FORMAT statement ... Newsletter 1649
  - punch output routing ... Newsletter 1647
- Job accounting ... Newsletter (see Computer usage accounting)
- Job accounting and billing system replacement ... Newsletter 1615
- JOB card
  - conversion to MVS format ... Newsletter 1584, Newsletter 1585
  - MVS format required 12/7/81 ... Newsletter 1591
- JOB card (MVS format) required 12/7/81 ... Newsletter 1591
- Job class message ... Newsletter 1026
- Job scheduling ... Newsletter (see Dependent Job Control)
  - and dataset enqueue ... Newsletter 1743
  - change in MVS ... Newsletter 1604
  - Class Z Deferred Weekend Batch ... Newsletter 1687
  - operations guidelines ... Newsletter 869
  - priority ... Newsletter 1343
  - UNICOS batch service queues ... Newsletter 2580
  - UNICOS scheduling by priority ... Newsletter 2580
- Job scheduling priority
  - ASP standby priority changed ... Newsletter 1417
  - JOB statement CLASS keyword ... Newsletter 1567
  - Zero priority established ... Newsletter 1417
- JOB statements
  - account alias assignments for multiple accounts ... Newsletter 1563
  - MSGCLASS parameter ... Newsletter 1647
  - MVS format simulated in OS/MVT ... Newsletter 1567
  - PASSWORD= keyword ... Newsletter 1567
  - REGION= keyword ... Newsletter 1567
  - TIME= keyword ... Newsletter 1567
- JOBLIB DD statement
  - MVS and OS/MVT differences ... Newsletter 1638
- Jobs
  - CPU time ... Newsletter 975
  - information on past ones ... Newsletter 1140
  - run, number of ... Newsletter 870
  - WAIT time ... Newsletter 975

- Kedit full screen editor available for IBM Personal Computer ... Newsletter 2235
- KEPT, Consultant Cue ... Newsletter 763
- Kermit
  - commands automate onsite login for SNA, CICS, VAX, and MCAT ... Newsletter 2612
  - file transfer programs ... Newsletter 1852, Newsletter 1909, Newsletter 2087, Newsletter 2187
  - new diskettes available for Apple Macintosh ... Newsletter 2427
  - new diskettes available for IBM Personal Computer ... Newsletter 2427
  - translate tables changing ... Newsletter 2344
  - Version 2.31 available ... Newsletter 2613
- Kermit file transfer
  - Version 2.29B available ... Newsletter 2386
- Keypunches
  - retirement of ... Newsletter 2309
- Komand ... Newsletter 1615, Newsletter 2254

- Laboratory-Wide Administrative Database (LADB)
  - facilities available ... Newsletter 1547
  - Financial Management System (FMS) ... Newsletter 1547, Newsletter 2124
  - hot-line service ... Newsletter 1566
  - hot-line service) ... Newsletter 1547
  - HRS replacement plans ... Newsletter 2597
  - Human Resource System (HRS) ... Newsletter 1547, Newsletter 1860
  - Saving HRS information in a CMS file ... Newsletter 1860
  - status available on extension 2-5466 ... Newsletter 2124
  - tailored reports ... Newsletter 1547
- Language Sensitive Editor
  - available on the VAX 8700 computer ... Newsletter 2491
  - computer-based training (CBT) available ... Newsletter 2491
- LaserWriter
  - combining Macintosh pictures and Waterloo Script ... Newsletter 2304
- LaTeX now available on VAX 8700 computer ... Newsletter 2535
- Least-squares packages, LSLSQ ... Newsletter 1500
- Legalization of datasets ... Newsletter 1336
- LIBINDEX batch cataloged procedure ... Newsletter 2373
- Librarian
  - available for testing in MVS ... Newsletter 2118
  - choosing disk master file blocksizes ... Newsletter 2373
  - disk master file storage statistics ... Newsletter 2373
  - LIBINDEX batch cataloged procedure ... Newsletter 2373
  - MOVELIBR batch cataloged procedure ... Newsletter 2373
  - moving disk master files ... Newsletter 2373
  - users must move disk master files to IBM 3380-disk volumes ... Newsletter 2373
  - Version 3.7 with LIBAUDIT ... Newsletter 2548
  - Version 5.6A ... Newsletter 1112
- Librarian files
  - moved to DAT305 or TSPERM volumes ... Newsletter 2031
  - multiple-access damage to ... Newsletter 1379
  - recommended blocksizes ... Newsletter 1617, Newsletter 2373
  - unusable on IBM 3380 disks ... Newsletter 2031
  - warning to users ... Newsletter 1387
- LIBU cataloged procedures, disposition in ... Newsletter 1379
- Linear Algebra Workshop scheduled ... Newsletter 1519
- LINES parameter disabled ... Newsletter 671
- Linkage Editor
  - increased SIZE requirements ... Newsletter 1781
  - new features in MVS ... Newsletter 1619
  - old OS/MVT editor renamed to MVTLINK ... Newsletter 1619
  - OS/MVT upgraded to MVS function ... Newsletter 1619
  - TABLE OVERFLOW errors ... Newsletter 1781
- Linotype L300P typesetter
  - attached to Argonne computer network ... Newsletter 2381
- LINPACK
  - added to AMDLIB ... Newsletter 1292
  - computer comparisons using ... Newsletter 1876
  - preliminary version ... Newsletter 1084
  - replacements for obsolete AMDLIB routines ... Newsletter 1520
  - VM/SP ... Newsletter 1332
- Lisa Computer ... Newsletter (see Apple Computer)
- LISTPRIV
  - replaces SDMLIST ... Newsletter (see Database storage)
  - utility available in MVS ... Newsletter 1835
- Load balancing algorithm ... Newsletter 965
- Load modules (overlaid)
  - replacing TLEFT ... Newsletter 1592
- Loaners available from Electronics ... Newsletter 1762
- Local area network (LAN)
  - computer-based training course available in CMS ... Newsletter 2424
  - Ethernet reliability improved ... Newsletter 2490
- LOGO
  - Disspla Argonne logo ... Newsletter 1934
- Logon messages, revised to include operator messages ... Newsletter 1468
- Lotus 1-2-3 Graphics Printer Library diskette available ... Newsletter 2334
- Low priority
  - November sale ... Newsletter 1598
- LSI-11 systems, new users group formed ... Newsletter 1497

- MacDraw ... Newsletter (see Apple Computer)
- Machine Keyboard Origination (MKO)
  - use with ADIs ... Newsletter 2531
- Macintosh ... Newsletter (see Apple Computer)
- MacKermit ... Newsletter (see Apple Computer)
- MacKermit Version 0.9(40) available for Apple Macintosh ... Newsletter 2572
- MACSYMA available on the VAX 8700 ... Newsletter 2534
- Magnetic Fusion Energy computer network
  - Class VI computing available ... Newsletter 1749
  - electronic mail to BITnet via Argonne gateway ... Newsletter 2155
  - linked to Argonne file transfer network by gateway ... Newsletter 2071
  - new IBM Personal Computer terminal software now available ... Newsletter 2188
  - software upgraded ... Newsletter 2130
  - VAX MAIL and SEND commands ... Newsletter 2072
- Mail ... Newsletter (see Electronic mail)
- MAIN Statements
  - controlling SYSOUT datasets ... Newsletter 1649
  - overriding lines or cards defaults ... Newsletter 1567, Newsletter 1649
- Maintenance schedule (12/11/78) ... Newsletter 1241
- Maintenance services
  - computer available from Electronics ... Newsletter 1762, Newsletter 1869, Newsletter 1958
  - MicroVAX II available from Electronics ... Newsletter 2247
  - personal computer available from Electronics ... Newsletter 2149
- Management Information Systems
  - development funding for FY1989 ... Newsletter 2610
- Management Information Systems Section, new ... Newsletter 2558
- Manager of Computing Services, search for ... Newsletter 2129
- MARK IV
  - consulting ... Newsletter 726
  - course (self-study) ... Newsletter 726
  - datasets ... Newsletter 629, Newsletter 734
  - fixes ... Newsletter 994
  - Index to Manual ... Newsletter 734
  - latest test version ... Newsletter 1398
  - Version 8.0 ... Newsletter 1398
- Mass-11 word processor available on VAX 8700 ... Newsletter 2571
- MAST
  - system available ... Newsletter 2306
- Materials and Services Tracking system ... Newsletter (see MAST)

- Materials Catalog (MCAT) ... Newsletter 2500
  - enhancements ... Newsletter 2314
  - Kermit commands automate login for ... Newsletter 2612
  - now available ... Newsletter 2225
- MATHDOC documentation program available on VAX 8700 ... Newsletter 2415
- Mathematical libraries
  - AMDLIB ... Newsletter 479, Newsletter 489, Newsletter 539, Newsletter 587, Newsletter 615, Newsletter 627, Newsletter 651, Newsletter 678, Newsletter 742, Newsletter 777, Newsletter 785, Newsletter 815, Newsletter 843, Newsletter 873, Newsletter 891, Newsletter 893, Newsletter 924, Newsletter 958, Newsletter 996, Newsletter 997, Newsletter 1031, Newsletter 1032, Newsletter 1048, Newsletter 1078, Newsletter 1082, Newsletter 1133, Newsletter 1164, Newsletter 1214, Newsletter 1292, Newsletter 1344, Newsletter 1352, Newsletter 1358, Newsletter 1380, Newsletter 1396
  - IMSL ... Newsletter 1008, Newsletter 1083, Newsletter 1326, Newsletter 1346, Newsletter 1405, Newsletter 1449, Newsletter 1457, Newsletter 1589, Newsletter 1652, Newsletter 1780, Newsletter 1949
  - NAG ... Newsletter 1385, Newsletter 1423, Newsletter 1566, Newsletter 1589, Newsletter 1652, Newsletter 1781, Newsletter 1949, Newsletter 2099, Newsletter 2123, Newsletter 2146
- Mathematical software
  - available via Netlib ... Newsletter 2105
- Mathematics and Computer Science Division
  - VAX to be decommissioned 9/30/88 ... Newsletter 2557
- Mathematics and Computer Science Division
  - established ... Newsletter 1667
- Matrix camera
  - available for Disspla users ... Newsletter 2045
  - charging for ... Newsletter 1998
  - hardware shading ... Newsletter 2045
  - high resolution option ... Newsletter 2045
  - improvements over FR80 ... Newsletter 2045
  - viewgraph development schedule ... Newsletter 2529
  - viewgraphs and negatives available ... Newsletter 2489
- MC/ST, IBM 6670 Document Distributor used to format and print text ... Newsletter 1383
- MCAT ... Newsletter (see Materials Catalog)
- MCST command ... Newsletter 719
- Measuring electronic mail ... Newsletter 1870
- Message Switching Computer (MSC) ... Newsletter (see RADS stations)
- MFE computer network ... Newsletter (see Magnetic Fusion Energy computer network)
- MFEnet
  - upgraded to MFEnet II ... Newsletter 2570
- MFEnet I
  - ACRF available from ... Newsletter 2346
  - upgraded to 50 kilobaud ... Newsletter 2374
- MFEnet II ... Newsletter 2570
- Microcomputers ... Newsletter 1594
- Microfiche printer support
  - charge rates changed ... Newsletter 1530, Newsletter 2065
  - expanded tape-to-fiche ... Newsletter 1578
  - fast tape-to-fiche replacement ... Newsletter 1742
  - in MVS ... Newsletter 1505
  - new DatagraphiX AutoCOM II unit ... Newsletter 1705
  - new system in virtual machine ... Newsletter 1509
  - saves fiche ... Newsletter 1537
  - SYSOUT Class F ... Newsletter 1647
  - tape-to-fiche documentation ... Newsletter 1578
  - tape-to-fiche facility enhanced ... Newsletter 1556
  - testing DatagraphiX AutoCOM II ... Newsletter 1701
  - TPFICHE command ... Newsletter 1556, Newsletter 1578
  - TPFICHE command discontinued ... Newsletter 1790
  - TPFICHE replacement ... Newsletter 1742, Newsletter 1790
- Microprocessors
  - hardware and software available ... Newsletter 1536
  - PROM-burner facilities available ... Newsletter 1536
- MicroVAX II maintenance services available from Electronics ... Newsletter 2247
- Microwave system
  - to be installed in January 1989 ... Newsletter 2614
- Migration
  - disk improvements in MVS ... Newsletter 1606
- Minicomputer services ... Newsletter 905
- Minidisks
  - backup and restore ... Newsletter 1367
  - for VM/SP program products ... Newsletter 1419
  - improved data recovery ... Newsletter 1982
  - revised procedure for expanding or contracting ... Newsletter 1806
  - storage of space for ... Newsletter 1525
- MINPACK-1
  - added to AMDLIB ... Newsletter 1468, Newsletter 1481
- MINPACK1 ... Newsletter 1214
- MIXALF, in LOGO routine ... Newsletter 1402
- Mod II Library ... Newsletter 850, Newsletter 851
  - updated ... Newsletter 809, Newsletter 825, Newsletter 1015
- Modems ... Newsletter 2114
  - limited support of Bell 1,200-baud ... Newsletter 1540
  - recommended at ANL ... Newsletter 1875
- MODEM7 program with CP/M personal desktop computers ... Newsletter 1707
- Moratorium on personal computers and word processors ... Newsletter 1957, Newsletter 1980
- MORTRAN preprocessor ... Newsletter 712
- MOUNT command ... Newsletter 2414
- MOVELIBR batch cataloged procedure ... Newsletter 2373
- MOVESAS ... Newsletter 2362
- MSA selected as Integrated Financial System vendor ... Newsletter 2407
- Multi-file tape use aid ... Newsletter 670
- Multiple accounts
  - to be given new account aliases ... Newsletter 1563
- Multiprocessing ... Newsletter 2478, Newsletter 2513
- Multitasking ... Newsletter 508
- MVS
  - account alias on JOB statements ... Newsletter 1563, Newsletter 1567
  - accounting information to be removed from datasets ... Newsletter 1637
  - accounting package ... Newsletter 1506
  - ACT=NO322 parameter not available ... Newsletter 1610
  - ANSYS Version 3 disk costs ... Newsletter 1995
  - assemblers ... Newsletter 1610
  - automatic revocation of user privileges implemented ... Newsletter 1865
  - batch disk usage classes ... Newsletter 2061
  - batch enrollment procedures revised ... Newsletter 1875
  - batch job inquiry ... Newsletter 1628
  - batch jobs accessing read-only datasets from Fortran ... Newsletter 2035
  - batch jobs using tapes ... Newsletter 1609, Newsletter 1638
  - batch operating system to be upgraded to MVS 1.3.5 ... Newsletter 2086, Newsletter 2097, Newsletter 2144, Newsletter 2156
  - batch operating system to be upgraded to MVS/SP 1.3.3 ... Newsletter 2041
  - batch with SAS/Graph Version 5 ... Newsletter 2283
  - becomes production system 2/28/82 ... Newsletter 1637, Newsletter 1640
  - BMDP Statistical Package upgraded ... Newsletter 1994
  - catalog restrictions ... Newsletter 1618
  - cataloged procedure blocksize changes ... Newsletter 2029, Newsletter 2061
  - cataloged procedures, HISTOR ... Newsletter 2387
  - cataloged procedures, LIBINDEX ... Newsletter 2373
  - cataloged procedures, MOVELIBR ... Newsletter 2373
  - CICS software installed ... Newsletter 1713
  - CICS software to be installed ... Newsletter 1646
  - compilers (Algol, Fortran G, and RPG) not available ... Newsletter 1593
  - Computer Graphics Metafile (CGM) graphics capabilities available for testing ... Newsletter 2547
  - computer-based training (CBT) courses available in CMS ... Newsletter 2394
  - conversion of additional existing disk volumes ... Newsletter 1733
  - conversion planning topics ... Newsletter 1505
  - conversion progress report ... Newsletter 1407, Newsletter 1505, Newsletter 1574, Newsletter 1591
  - dataset naming conventions ... Newsletter 1618
  - dataset report available ... Newsletter 1616
  - determining batch job charges ... Newsletter 1616
  - DFSORT available for testing ... Newsletter 2087, Newsletter 2293, Newsletter 2549
  - disk data management improvements ... Newsletter 1606
  - disk data migration modifications in MVS complete ... Newsletter 1627
  - disk generic names implemented ... Newsletter 1616
  - expectation scheduling ... Newsletter 1604, Newsletter 1628
  - FETCH batch job output ... Newsletter 1629
  - file transfer protocol ... Newsletter 1591
  - Fortran H Extended (Enhanced) Compiler (Version 1.3.0) becomes production ... Newsletter 1960
  - Fortran H restricted ... Newsletter 1658
  - graphics software installed ... Newsletter 1505
  - Historian source code maintenance program Release 4.0 available ... Newsletter 1995
  - IBM VS Fortran cataloged procedures default to load mode ... Newsletter 2191
  - IBM VS Fortran compiler and library (Release 4.1) available for testing in MVS batch ... Newsletter 2132
  - IBM VS Fortran compiler and library (Release 4.1) production version ... Newsletter 2160,

Newsletter 2190
  IBM VS Fortran compiler and library available for testing ... Newsletter 1734
  IBM VS Fortran Release 4 library incompatible with previous versions ... Newsletter 2190
  IBM 3350 disks replaced by IBM 3380 disks ... Newsletter 2061
  IBM 3380 database volumes ... Newsletter 1920
  initial performance test results ... Newsletter 1526
  JCL changes required when using scratch tapes ... Newsletter 1658
  JCL for read-only access to datasets ... Newsletter 2035
  JOB and MAIN Statements simulated in OS/MVT ... Newsletter 1567
  JOB card conversion to ... Newsletter 1584, Newsletter 1585
  JOB card required 12/7/81 ... Newsletter 1591
  Job priority specified with CLASS= keyword ... Newsletter 1567
  job scheduling change ... Newsletter 1604
  JOBLIB/STEPLIB DD statement use ... Newsletter 1638
  LABEL=(external,internal) keyword must be changed ... Newsletter 1619
  linkage editor enhancements ... Newsletter 1619
  macro libraries ... Newsletter 1610
  maintenance and testing ... Newsletter 1714
  maximum region size reduced ... Newsletter 2531
  microfiche printer support system ... Newsletter 1505, Newsletter 1530
  mixed storage classes ... Newsletter 1616
  movement of SAS datasets on TSPERM (TSP60n) volumes ... Newsletter 2362
  new IBM 3380 disk storage ... Newsletter 2029, Newsletter 2047
  new manuals ... Newsletter 1605, Newsletter 1615
  new TSO rates ... Newsletter 1732
  PL/I Checkout Compiler removal ... Newsletter 2588
  PL/I Optimizing Compiler 5.1 available for testing ... Newsletter 2549
  PMS IV to be removed ... Newsletter 2583
  policy on purging held output files extended ... Newsletter 1866
  print priority revised ... Newsletter 1629
  private user PROCLIBs available ... Newsletter 1858
  RACF to be installed ... Newsletter 1669, Newsletter 1681
  RADS/RJP line limits ... Newsletter 1657
  Release 1.3.5 IEBGENER needs larger region ... Newsletter 2185
  releasing unneeded tapes ... Newsletter 2123
  RJP support ... Newsletter 1506
  SAS/Econometrics and Time Series Library available ... Newsletter 1994
  SASCR volume serial numbers changing ... Newsletter 2410
  SAVE command ... Newsletter 1638
  SCRATCH command ... Newsletter 1638
  selecting local printers ... Newsletter 1629
  separating scratch datasets ... Newsletter 2410
  separator pages (output) ... Newsletter 1630
  some FORMS name changing ... Newsletter 2583
  SORT/MERGE (OS/VS) available for testing ... Newsletter 1724
  test machine will benefit from 3033 memory expansion ... Newsletter 1547
  TSO availability ... Newsletter 1683, Newsletter 1724, Newsletter 1749
  TSO conversion plans ... Newsletter 1506
  TSO conversion set for 1/17/83 ... Newsletter 1732
  TSPERM volumes to be decommissioned ... Newsletter 2426
  UCC-1 tape library management system goes production 3/18/85 ... Newsletter 2019
  Unit Test available to all ... Newsletter 1622
  Unit Test expanded to all day Sundays ... Newsletter 1553
  UNIT TEST GUIDE manual revised ... Newsletter 1589
  Unit Test in progress ... Newsletter 1533
  Unit Test Program ... Newsletter 1377
  Unit Test system running ... Newsletter 1407
  Unit Test virtual machine to use set-up 2314's ... Newsletter 1388
  upgraded JES3 system in batch user test 6/6/83 ... Newsletter 1796
  upgraded system user test 3/14/83 ... Newsletter 1755
  user test in Wylbur and batch on 4/14/86 ... Newsletter 2173
  using 5835XP with Disspla ... Newsletter 2440
  VAX NJE users may specify account alias for batch jobs ... Newsletter 2518
  VM/SP batch exec JOB card conversion ... Newsletter 1591
  VS Fortran (Release 3) becomes production ... Newsletter 1834
  VS Fortran (Version 1.3.1) becomes production ... Newsletter 1959
  VS Fortran Release 3 available for testing in batch ... Newsletter 1814
  VS Fortran Version 2.3.0 available for testing ... Newsletter 2567
  VSAM available ... Newsletter 1694
  WRIT800 and TAPE800 generic names for tapes removed ... Newsletter 2442
  Wylbur FETCH command to view batch output ... Newsletter 1607
  Wylbur multiple accounts ... Newsletter 1637
  Wylbur support ... Newsletter 1506
  3380 disks to replace 3330 SASCR ... Newsletter 2410
MVS catalog
  user catalogs moving ... Newsletter 2343
MVS incompatibilities with OS/MVT
  catalog restrictions ... Newsletter 1618
  compiler availability ... Newsletter 1593, Newsletter 1658
  JOBLIB/STEPLIB differences ... Newsletter 1638
  local TSO commands to be dropped ... Newsletter 1683
  non-IBM utility program availability ... Newsletter 1618
  SYSOUT DD statement parameters ... Newsletter 1649
MVS JCL
  computer-based training (CBT) courses available in CMS ... Newsletter 2394

NAG library
  changes ... Newsletter 1652
  dataset name changed ... Newsletter 1652
  G floating-point NAG library available on VAX 8700 ... Newsletter 2504
  guidelines for using ... Newsletter 1589
  library available ... Newsletter 1385
  Mark 11 Version available for testing ... Newsletter 2099
  Mark 11 Version to be removed from VAX 8700 ... Newsletter 2551
  Mark 12 Version available in UNICOS ... Newsletter 2562
  Mark 8 Version ... Newsletter 1566
  Mark 9 Version available for testing ... Newsletter 1781
  routines for constrained minimization ... Newsletter 1423
  updated to Version 11 ... Newsletter 2123, Newsletter 2146
  updated to Version 9 ... Newsletter 1949
National Computer Conference Pioneer Day ... Newsletter 2053
National Energy Software Center
  software sharing ... Newsletter 1773
National Magnetic Fusion Energy network (NMFEnet)
  access upgrade to supercomputer ... Newsletter 2005
  Argonne major node on ... Newsletter 1969
NBI
  NJE network connection ... Newsletter 2299
NCSA Telnet program
  available for Apple Macintosh personal computers ... Newsletter 2615
  available for IBM Personal Computers ... Newsletter 2615
Negative film
  available from Matrix camera ... Newsletter 2489
NESC ... Newsletter (see National Energy Software Center
Netlib ... Newsletter 2105
Netlib Software Library distribution service ... Newsletter 2105
Networks
  AppleTalk network ... Newsletter 2158
  ARPAnet ... Newsletter 934, Newsletter 1076, Newsletter 1201, Newsletter 1507, Newsletter 1591, Newsletter 1745, Newsletter 1768, Newsletter 2072
  Batch job-nets (//*NET) ... Newsletter (see Dependent Job Control)
  BITnet ... Newsletter 1831, Newsletter 1857, Newsletter 1869, Newsletter 1906, Newsletter 1927, Newsletter 1928, Newsletter 1944, Newsletter 2015, Newsletter 2054, Newsletter 2095, Newsletter 2115, Newsletter 2142
  computer-based training course available in CMS ... Newsletter 2424
  DECnet ... Newsletter 2140
  gateways to other networks ... Newsletter 2155
  Laboratory-wide DECnet ... Newsletter 2140, Newsletter 2209
  MFEnet ... Newsletter 1969, Newsletter 2005
  NJE connection to DOE-Germantown ... Newsletter 2275, Newsletter 2382
  Personal computer local area network recommendations ... Newsletter 2158
  3Com EtherSeries network ... Newsletter 2158
NEWSLETTER
  distribution policy ... Newsletter 2011
  elimination of statistics ... Newsletter 2313
  new format ... Newsletter 2313
Nicknames ... Newsletter (see Electronic mail)
NJE link ... Newsletter 2374
NJE nodenames (Germantown) changed ... Newsletter 2585
NMFEnet (see National Magnetic Fusion Energy network) ... Newsletter 1969
No-write rings for tapes ... Newsletter 1464
Nonlinear equations system, use of MINPACK-1 package ... Newsletter 1481
NOTE compatibility with non-VM/SP systems ... Newsletter 1869
Numerical Algorithms Group ... Newsletter (see NAG library)
Numerical Optimization Workshop ... Newsletter 1094, Newsletter 1110

Off-site access to computing facilities during off shifts ... Newsletter 1566
Office automation ... Newsletter 1739, Newsletter (see Electronic mail), Newsletter see Personal computers, Newsletter see Electronic mail
  Argonne strategy ... Newsletter 1889
  Computing Workstation Components Acquisition Policy ... Newsletter 2061
  DOE moratorium on word processors ... Newsletter 1957, Newsletter 1980
  Electronic Office Workstation Coordinator ... Newsletter 1803
  file transfer goals ... Newsletter 1803
  PROFS mail rate reduced ... Newsletter 2438
  project results ... Newsletter 1991
  word processors ... Newsletter 1803
Office automation systems
  computer-based training course available in CMS ... Newsletter 2424
Office Systems
  computer-based training courses available in CMS ... Newsletter 2559
Office technology interest group formed ... Newsletter 1612
Offline datasets on tape
  DA datasets on PERM moved to ... Newsletter 1542, Newsletter 1596
  lifetime extended ... Newsletter 1542, Newsletter 1596
OFFTAPE Wylbur exec ... Newsletter 1576
OLD option in Script 3.5 ... Newsletter 1423, Newsletter 1458
OLDTONEW temporary cataloged procedure ... Newsletter 1422
Operating Systems ... Newsletter (see specific system (MVS, OS/MVT, JES3)
  future planning ... Newsletter 1361
OPTIONS, parameter in Script procedures ... Newsletter 1403

- Ordinary differential equation
  - package ... Newsletter 1500, Newsletter 1543
- OS/MVT
  - assemblers ... Newsletter 1610
  - macro libraries ... Newsletter 1610
  - SORT/MERGE available for testing ... Newsletter 1753
- OS/MVT batch
  - accessing PL/I test compiler versions in ... Newsletter 1409
  - accessing Script version in ... Newsletter 1403
  - job charge increased ... Newsletter 1463
  - MVS-format JOB card required 12/7/81 ... Newsletter 1599
  - November sale ... Newsletter 1598
  - region limit increased to 3072K ... Newsletter 1506
  - revised manuals available ... Newsletter 1550
  - routing microfiche printer output ... Newsletter 1509
  - simulation of proposed MVS JOB card ... Newsletter 1567
  - system frozen except for MVS conversion ... Newsletter 1593
  - use of Watfiv ... Newsletter 1511
  - utilities documentation available online ... Newsletter 1559
  - weekend schedule ... Newsletter 1596
- OS/MVT DATA MANAGEMENT AT ANL
  - revised ... Newsletter 1589
- OS/MVT incompatibilities with MVS
  - Fortran H availability ... Newsletter 1658
  - JOBLIB/STEPLIB DD statement use ... Newsletter 1638
  - MVS-only database storage ... Newsletter 1776, Newsletter 1832
  - MVS-only 3380 disks ... Newsletter 1832
- OS/VS SORT/MERGE ... Newsletter (see SORT/MERGE (OS/VS))
- OS/2
  - considerations ... Newsletter 2457
- Output
  - destination ... Newsletter (see DEST)
  - distribution to bins changes ... Newsletter 1803
  - inquiry and modify commands ... Newsletter 1764
  - local line limits ... Newsletter 1668, Newsletter 1701
  - policy on purging output files ... Newsletter 1866
  - RJP/RADS line limits ... Newsletter 1657
  - separator pages in MVS ... Newsletter 1630
- Overriding SYSOUT= ... Newsletter 581, Newsletter 1647, Newsletter 1649
- OVLYTREE ... Newsletter 735

- Paging
  - Reduced by expanding memory of Red 3033 ... Newsletter 1547
- Pascal/VS (IBM) available in VM/SP ... Newsletter 1669
- Passwords ... Newsletter (see RACF)
  - CMS minidisk ... Newsletter 1715
  - data security in VM/SP ... Newsletter 1715
  - not divulged by AMD ... Newsletter 1474
  - obtaining forgotten ... Newsletter 1454, Newsletter 1474
  - RACF passwords expire ... Newsletter 1681, Newsletter 1693, Newsletter 1708
  - same for batch jobs and Wylbur logon with RACF ... Newsletter 1669, Newsletter 1681, Newsletter 1693, Newsletter 1708
  - to change (Wylbur) ... Newsletter 1669, Newsletter 1681, Newsletter 1693, Newsletter 1708
- Pattern production and animation ... Newsletter 772
- Payroll System
  - CICS based ... Newsletter 1713
- PBX
  - acceptance ... Newsletter 2531
  - access to Hydra Protocol Converter ... Newsletter 2411
  - accessing Hydra Protocol Converter ... Newsletter 2429
  - ADI-100 units connecting terminals and personal computers ... Newsletter 2412
  - contract signed ... Newsletter 2209
  - cutover on 9/19/87 ... Newsletter 2395
  - cutover scheduled ... Newsletter 2379
  - freeze on telephone service requests ... Newsletter 2364
  - incompatible with pulse dialing ... Newsletter 2364
  - terminal types for accessing non-MNP modems ... Newsletter 2412
  - to be installed in FY1987 ... Newsletter 2139
  - training schedule ... Newsletter 2364
  - update ... Newsletter 2325
  - voice and data services to be used with ... Newsletter 2260
- PC DOS patch diskette available ... Newsletter 2386
- PCC5835
  - cataloged procedure for postplotting on the CalComp 5835XP color plotter ... Newsletter 2438
- PDP-11 systems
  - documentation for RSX-11M available ... Newsletter 1496
- PERM
  - conversion to IBM 3380 disks in MVS ... Newsletter 2061
  - conversion to 3380 disks in MVS ... Newsletter 2029
- Personal computers ... Newsletter 1594, Newsletter (see Office automation), Newsletter (see particular computer), Newsletter (see Office automation), Newsletter 2411
  - Apple II used as a terminal ... Newsletter 1660
  - Apple IIe Personal Computer used as a terminal ... Newsletter 1900
  - Apple LaserWriter available for general graphics use ... Newsletter 2280
  - Apple LaserWriter connected to RADS ... Newsletter 2280
  - break character for ... Newsletter 1795
  - computer maintenance available from Electronics ... Newsletter 1762, Newsletter 1958, Newsletter 2149
  - computer upgrades available from Electronics ... Newsletter 1958, Newsletter 2149
  - Computing Workstation Components Acquisition Policy ... Newsletter 2061
  - CP/M used as a terminal ... Newsletter 1707
  - DBase III and DBase III Plus classes ... Newsletter 2428
  - discount contract with University of Chicago ... Newsletter 1879
  - disk drive in stock ... Newsletter 2187
  - DOE moratorium on ... Newsletter 1957, Newsletter 1980
  - DOS tutorial available for ... Newsletter 2386
  - electronic worksheet programs ... Newsletter 1706
  - file transfer ... Newsletter 1707, Newsletter 1852, Newsletter 1909
  - FY1985 deadline for ordering ... Newsletter 2041
  - graphics terminal emulation program for IBM Personal Computer ... Newsletter 1946
  - IBM color graphics monitor difficulty ... Newsletter 2285
  - IBM Personal Computer served by SIM3278 ... Newsletter 1891
  - IBM Personal Computers in stock ... Newsletter 2008
  - IBM Personal System/2 available for testing ... Newsletter 2385
  - IBM purchase agreement ... Newsletter 1857
  - IBM used as a terminal ... Newsletter 1659, Newsletter 1891, Newsletter 2411
  - Local Area Network Evaluation and Demonstration Project ... Newsletter 2079
  - local area network recommendations ... Newsletter 2158
  - MacDraw recommended for Macintosh ... Newsletter 2079
  - Macintosh recommended for selected applications ... Newsletter 1996
  - Macintosh used as a terminal ... Newsletter 2411
  - maintenance of ... Newsletter 1869
  - new recommended configuration in stock ... Newsletter 2202
  - new services available for ... Newsletter 1946
  - number at Argonne ... Newsletter 1752
  - ordering for personal use ... Newsletter 2096
  - recommended configuration in stock ... Newsletter 2113
  - recommended modems ... Newsletter 1875
  - revised price list for Apple products ... Newsletter 2016
  - settings for terminal emulators ... Newsletter 1795
  - SuperImage/SuperChart graphics software ... Newsletter 2456
  - University of Chicago accepting personal orders for Macintosh ... Newsletter 1921
  - 3.5 inch disk drive for IBM Personal Computer ... Newsletter 2285
- Personal Desktop Computer Local Area Network Evaluation and Demonstration Project ... Newsletter 2079
- Personal Desktop Computing
  - Lotus graphics printer library ... Newsletter 2334
- Personal tape reels ... Newsletter 684, Newsletter 694
- Personnel listing now available ... Newsletter 2108, Newsletter 2335

- Personnel system
  - CICS based ... Newsletter 1713
  - electronic mail address available ... Newsletter 1750
  - goes production 2/21/83 ... Newsletter 1750
  - replaces Information System for Employee Data ... Newsletter 1750
- Phased disk replacement
  - elimination of TSPERM ... Newsletter 2456
  - elimination of TSP60n disks ... Newsletter 2456
- PHYSnet ... Newsletter 2300
- Pinpoint
  - option in Tellagraf 6.0 ... 2233
  - workstation reference cards (Tellagraf) ... Newsletter 2255
- PIRS ... Newsletter (see Purchase Information Reporting System)
- PL/I
  - accessing Optimizing Compiler test versions on Batch ... Newsletter 1409
  - accessing test versions in VM/SP ... Newsletter 1409
  - checker tutorial ... Newsletter 629
  - Checkout Compiler ... Newsletter 554, Newsletter 620, Newsletter 1212, Newsletter 1380
  - Checkout Compiler removal ... Newsletter 2588
  - compiler modification level boosted ... Newsletter 1409
  - efficiency analyzer ... Newsletter 592, Newsletter 717
  - graphics usage ... Newsletter 853, Newsletter 942
  - interlanguage communication (ILC) ... Newsletter 942
  - limitation removed enabling interlanguage communication with VS Fortran ... Newsletter 1935
  - new Optimizing Compiler available for testing ... Newsletter 1409
  - Optimizing Compiler ... Newsletter 620, Newsletter 795, Newsletter 1212, Newsletter 1265
  - Optimizing Compiler available for testing in CMS ... Newsletter 2500
  - Optimizing Compiler documentation updates ... Newsletter 1409
  - Optimizing Compiler Release 4.1 available for testing ... Newsletter 1779
  - Optimizing Compiler updated to Release 3.1 ... Newsletter 1441
  - Optimizing Compiler Version 1 Release 4 goes production ... Newsletter 1826
  - Optimizing Compiler 1.4.0 available for test ... Newsletter 2308
  - Optimizing Compiler 5.1 available for testing in MVS batch ... Newsletter 2549
  - Resident Library updated to Release 3.1 ... Newsletter 1441
  - Transient Library updated to Release 3.1 ... Newsletter 1441
- PLEA ... Newsletter 592, Newsletter 717
- Plotter to be acquired ... Newsletter 2407
- PLOTUTL Library
  - ANLPAG subroutine ... Newsletter 1419
  - ANLPOS subroutine ... Newsletter 1419
  - ANLSCL subroutine ... Newsletter 1419
- PMS IV ... Newsletter (see Project Management System)
- PMSXNP cataloged procedure ... Newsletter 953
- Policy
  - Computer Protection ... Newsletter 1865
  - purging MVS output files ... Newsletter 1865
- Postprocessor (Disspla) becomes production ... Newsletter 2148
- PostScript
  - converting to Apple LaserWriter ... Newsletter 2335
- PostScript printers
  - connection to Argonne file transfer network ... 2226
  - for text and graphics ... 2226
- PRGM, parameter not recognized ... Newsletter 1403
- Print line limit ... Newsletter 671, Newsletter 1668, Newsletter 1701, Newsletter 1702
  - changed for 3800 printer ... Newsletter 1391
- Printer plotting - ESPLOT3 ... Newsletter 638, Newsletter 801
- Printers
  - local line limits revised ... Newsletter 1668, Newsletter 1701
  - microfiche cheaper than IBM 3800 ... Newsletter 2065
  - PostScript for text and graphics ... Newsletter 2226
  - printer in 201 for reports ... Newsletter 2579
  - printing PostScript output ... Newsletter 2226
  - RJP/RADS line limits ... Newsletter 1657
  - selecting local printers ... Newsletter 1648
  - selecting with DEST ... Newsletter 1648, Newsletter 1649
  - selecting with SYSOUT class ... Newsletter 1647
  - tape-to-fiche service ... Newsletter 1742
  - tape-to-printer service ... Newsletter 1668, Newsletter 1702, Newsletter 1742
- PRINTPS exec ... Newsletter 2350
- Priority ... Newsletter 1343
  - multipliers changed ... Newsletter 1473
  - scheduling of Standby work ... Newsletter 1483
- Private Branch Exchange ... Newsletter (see PBX)
- Private regions ... Newsletter (see Database storage)
- Problem reporting system ... Newsletter 1200, Newsletter 1679
- PROFILE EXEC default provided for new VM/SP users ... Newsletter 1766
- PROFS ... Newsletter 1739
  - calendars ... Newsletter 2017
  - computer-based training (CBT) courses available in CMS ... Newsletter 2394
  - electronic mail ... Newsletter 1869, Newsletter 2017
  - mail rate reduced ... Newsletter 2438
  - Version 2 installation plans ... Newsletter 2201
  - Version 2 Release 2 installation plans ... Newsletter 2544
- PROGLOOK code tuning aid ... Newsletter 592, Newsletter 683
- Program products minidisks ... Newsletter 1395
- Program size expanded in VAX/VMS ... Newsletter 2413
- Programs (experimental versions) ... Newsletter 1265
- Project Management
  - computer-based training course available in CMS ... Newsletter 2424
- Project Management System (PMS 1V) ... Newsletter 2497
  - accessing test versions of ... Newsletter 1397
  - Cost Processor test version ... Newsletter 1386, Newsletter 1397, Newsletter 1405, Newsletter 1440, Newsletter 1450, Newsletter 1499, Newsletter 1521
  - Extended Network Processor test version ... Newsletter 1386, Newsletter 1397, Newsletter 1405, Newsletter 1440, Newsletter 1450, Newsletter 1499, Newsletter 1521, Newsletter 1577
  - Report Processor test version ... Newsletter 1386, Newsletter 1397, Newsletter 1405, Newsletter 1440, Newsletter 1450
  - Resource Allocation Processor ... Newsletter 1598, Newsletter 1621
  - Resource Allocation Processor test version ... Newsletter 1386, Newsletter 1397, Newsletter 1405, Newsletter 1440, Newsletter 1450, Newsletter 1598
  - to be removed from MVS ... Newsletter 2583
- PROOFREAD available in VM/SP ... Newsletter 1840
- Protection
  - computer protection ... Newsletter 2454
  - Computer Protection Policy ... Newsletter 1865
- Protocol converter ... Newsletter (see IBM 3270 Protocol Converter)
- PRTY=keyword not valid in MVS JOB Statements ... Newsletter 1567
- Public execs, on Wylbur updated ... Newsletter 1468
- Pulse dialing incompatible with PBX ... Newsletter 2364
- Punched output
  - keywords required for ... Newsletter 2203, Newsletter 2238
  - selecting local punch ... Newsletter 1647
  - SYSOUT classes ... Newsletter 1647
- Punches
  - selecting with SYSOUT class ... Newsletter 1647
- Purchase Information Reporting System (PIRS) ... Newsletter 1933, Newsletter 2065, Newsletter 2204
- Purchase order data ... Newsletter 2204
- PVM communications package ... Newsletter 1736
  - remote dialing ... Newsletter 1791

- Quadrature routines, AMDLIB DROMB routine ... Newsletter 1424
- QUERY DISK, CMS command reformatted ... Newsletter 1394
- Questionnaire, on Distributed Computing, results ... Newsletter 1377
- QZIT EISPACK routine improved ... Newsletter 997
- QZVAL EISPACK routine improved ... Newsletter 997

- RACF
  - accessing datasets from Wylbur ... Newsletter 1881
  - accessing protected datasets from Fortran ... Newsletter 2035
  - automatic revocation of user privileges implemented in MVS ... Newsletter 1865
  - dataset protection available ... Newsletter 1776
  - dataset protection plans ... Newsletter 1701
  - dataset protection procedures ... Newsletter 1789
  - generic protection feature ... Newsletter 2330
  - installation procedure ... Newsletter 2454
  - large print limit authorization ... Newsletter 1701, Newsletter 1702
  - migration dataset protection available ... Newsletter 2330
  - MVS batch password authorization ... Newsletter 1681, Newsletter 1693, Newsletter 1708
  - passwords stored in encoded format ... Newsletter 2519
  - protection for all disk datasets ... Newsletter 2330
  - protection of disaster backup tapes ... Newsletter 2214
  - requires BLP for tapes to be replaced ... Newsletter 1777
  - system datasets protected ... Newsletter 2035
  - tape protection available for testing ... Newsletter 1777
  - tape protection plans ... Newsletter 1776
  - to be installed in MVS ... Newsletter 1669, Newsletter 1681, Newsletter 1693, Newsletter 1708
  - users responsible for backup/restore ... Newsletter 1776
  - Wylbur password authorization ... Newsletter 1681, Newsletter 1693, Newsletter 1708
- RACFCOMM
  - cataloged procedure ... Newsletter 2330
  - Wylbur exec ... Newsletter 2330
- Radio page numbers added to ANLPHONE ... Newsletter 2388
- RADS stations
  - changes in papertape punch usage ... Newsletter 1559
  - interface to connect to Apple LaserWriters ... Newsletter 2226
  - line limit ... Newsletter 1657
  - Message Switching Computer (MSC) ... Newsletter 1575
  - new format card required for punched output ... Newsletter 1559
  - plotter ... Newsletter 2284
- RADS02 (Chemistry) disconnected ... Newsletter 1686
- RAMIS
  - computer-based training courses available in CMS ... Newsletter 2479
- Random number subroutines
  - AFRAND ... Newsletter 1440
- Rates ... Newsletter (see Service rates)
- Rationing
  - suspension of enforcement continued ... Newsletter 1449

- RDBUSE
  - computer-based training course available in CMS ... Newsletter 2479
- Read-only access, automatic if other user linked to minidisk ... Newsletter 1394
- REDUCE symbolic algebra program available in CMS ... Newsletter 2235
- Region managed disk storage ... Newsletter (see Database storage)
- Removal policy, for non-production software ... Newsletter 1498
- REPCON command ... Newsletter 1861, Newsletter 2426
- Report Connection ... Newsletter 1861
- Reports, printing in 201 ... Newsletter 2579
- RESERVE capability inactivated ... Newsletter 1379
- RESET
  - aid for multi-file tapes ... Newsletter 670
  - subroutine ... Newsletter 874
  - Tektronix subroutine
    - renamed ... Newsletter 718
- Retention period, personal tapes ... Newsletter 684
- RJP
  - line limit ... Newsletter 1657
  - stations, MVS support ... Newsletter 1506
- ROUTE command ... Newsletter 663
- RPG
  - available only in OS/MVT ... Newsletter 1593
- RSX-11M
  - CAMAC controller being developed ... Newsletter 1453
  - documentation ... Newsletter 1453
  - documents available ... Newsletter 1496
  - F11ACP patch causes directory damage ... Newsletter 1470

- SAP6 ... Newsletter (see Structural Analysis Program-6)
- SAS ... Newsletter (see Statistical Analysis System)
- SAS/Graph
  - ISSCO metafiles with SAS 5 ... Newsletter 2281, Newsletter 2282, Newsletter 2283
  - translate tables changing ... Newsletter 2344
  - Version 5 available for testing in CMS ... Newsletter 2281
  - Version 5 available for testing in MVS batch ... Newsletter 2281
  - Version 5 in CMS ... Newsletter 2282
  - Version 5 in MVS batch ... Newsletter 2283
- SASBOTH cataloged procedure
  - SASLIB parameter in ... Newsletter 1410
- SASCR ... Newsletter 608, Newsletter 937
  - being replaced by 3380 disks ... Newsletter 2410, Newsletter 2426
  - number of volumes reduced ... Newsletter 2410
  - separating datasets on ... Newsletter 2410
  - volume serial numbers
    - changing ... Newsletter 2410
- Schedule
  - 1982 holiday ... Newsletter 1700, Newsletter 1717
  - 1983 holiday ... Newsletter 1839
  - 1984 holiday ... Newsletter 1957, Newsletter 1971
  - 1985 holiday ... Newsletter 2106
  - 1986 holiday ... Newsletter 2115
  - 1987 holiday ... Newsletter 2290
- Scheduling
  - change in MVS ... Newsletter 1604
  - Class Z Deferred Weekend Batch ... Newsletter 1687
  - expectation in MVS ... Newsletter 1604
  - for Standby priority jobs ... Newsletter 1483
  - of long or large jobs ... Newsletter 1475
  - preventive maintenance (12/11/78) ... Newsletter 1241
- Scientific Applications Programming Group reductions ... Newsletter 2066
- Scientific Workstation Project ... Newsletter 1849, Newsletter 1979
- Script
  - bound manuals available ... Newsletter 1486
  - bugs ... Newsletter 763
  - cataloged procedures for ... Newsletter 1403
  - combining Macintosh pictures in CMS ... Newsletter 2304
  - correction ... Newsletter 763
  - course to be given ... Newsletter 1456
  - equation processing ... Newsletter 2316, Newsletter 2336
  - formula processing ... Newsletter 2316
  - interactive prompter ... Newsletter 1244
  - moved to own CMS minidisk ... Newsletter 1458
  - new 3.6 version available for testing ... Newsletter 1529
  - OLD option ... Newsletter 1458
  - OS/MVT batch versions ... Newsletter 1403
  - output (CalComp Microfiche Printer) ... Newsletter 1135
  - parameter not recognized ... Newsletter 1403
  - Syspub to be replaced by Generalized Markup Language (GML) ... Newsletter 2192, Newsletter 2215
  - transferring files between VM/SP users ... Newsletter 1497
  - TSO versions ... Newsletter 1403
  - using PostScript printers ... Newsletter 2336
  - Version 3.5 OLD option ... Newsletter 1423
  - Version 3.6 becomes production version ... Newsletter 1512
  - Version 3.6 to be upgraded ... Newsletter 1544
  - Version 3.7 available for testing ... Newsletter 1577
  - Version 3.7 becomes production version ... Newsletter 1815
  - Version 83.1 available for testing ... Newsletter 1961
  - Version 83.1 becomes production version ... Newsletter 1983
  - Version 85.1 available for testing ... Newsletter 2192
  - Version 86.0 available for testing ... Newsletter 2215
  - version 86.0 becomes production version ... Newsletter 2253
  - Version 86.0 PostScript output ... Newsletter 2226
  - Version 86.1 becomes production version ... Newsletter 2336
  - versions and procedures revised ... Newsletter 1403
  - VM/SP ... Newsletter 1331
  - VM/SP versions ... Newsletter 1403
- SDMLIST replaced by LISTPRIV ... Newsletter (see Database storage)
- Search committee
  - for Director of Mathematics and Computer Science ... Newsletter 2325
  - for Manager of Computing Services ... Newsletter 2129
- Secure tape labels ... Newsletter 1464
- Security ... Newslctter (see Data security), Newsletter (see Computer protection)
- Self-study courses ... Newsletter 1378
- Self-Teach ... Newsletter 2294, Newsletter 2331
- Seminars scheduled for April 1986 ... Newsletter 2143, Newsletter 2157
- SENDFILE Wylbur exec ... Newsletter 2089
- Separator pages (output) in MVS JES3 ... Newsletter 1630
- Sequent Balance computer ... Newsletter 2129
- Service rates
  - Cray X-MP/14 rates approved ... Newsletter 2466
  - experimental Class Z ... Newsletter 1687
  - first quarter Class Z usage ... Newsletter 1729
  - floors replaced by incentive plan ... Newsletter 2607
  - for outside users ... Newsletter 2607
  - FR80 16mm revised ... Newsletter 1597
  - FY1982 ... Newsletter 1572, Newsletter 1581
  - FY1983 ... Newsletter 1699
  - FY1984 ... Newsletter 1821, Newsletter 1917
  - FY1985 ... Newsletter 1979, Newsletter 1999
  - FY1986 ... Newsletter 2093
  - FY1987 ... Newsletter 2259, Newsletter 2275
  - FY1988 ... Newsletter 2437
  - FY1989 ... Newsletter 2601
  - indirect rate increased 10/1/85 ... Newsletter 2131
  - lower Overnight and Weekend ... Newsletter 1797
  - microfiche rate reduction ... Newsletter 2065
  - MVS dataset restore ... Newsletter 1699
  - PROFS mail rate reduced ... Newsletter 2438
  - rebate ... Newsletter 1797
  - remote tape storage ... Newsletter 2213
  - revised 2/82 ... Newsletter 1620
  - revised 4/29/82 ... Newsletter 1663
  - surcharge to non-ANL users increased ... Newsletter 2277, Newsletter 2438, Newsletter 2487, Newsletter 2557
  - telephone revised ... Newsletter 2179
  - UNICOS charging by queue ... Newsletter 2580
  - UNICOS charging by shift ... Newsletter 2580
  - X.25 concentrator charges ... Newsletter 1687
- Service Schedule
  - Computing Center ... Newsletter 1571, Newsletter 1586, Newsletter 2465
- Services (computer maintenance) available from Electronics ... Newsletter 1762, Newsletter 1958, Newsletter 2149, Newsletter 2498
- Setup disks moved ... Newsletter 1391
- SHARE
  - publications available in Central Library ... Newsletter 1929
  - Reference Shelf ... Newsletter 565
- SHDCHR, in LOGO routine ... Newsletter 1402
- SIM3270 simulation program ... Newsletter 1721, Newsletter 1769
  - being replaced by SIM3278 ... Newsletter 1891
  - new version available for testing ... Newsletter 1817
- SIM3278
  - conversion to Hydra Protocol Converter ... Newsletter 2443
- SIM3278 simulation program ... Newsletter 2429
  - available for user testing ... Newsletter 2171
  - becomes production ... Newsletter 1891
  - conversion to Hydra Protocol Converter ... Newsletter 2411, Newsletter 2412
  - IBM Personal Computer ... Newsletter 2235
  - reference cards ... Newsletter 2318
  - replaces SIM3270 ... Newsletter 1891
- SIM3278/PC ... Newsletter 2235
- SLATEC library
  - available on VAX 8700 computer ... Newsletter 2398
- SLFTEACH ... Newsletter 2294, Newsletter 2331
- Slides
  - automatic color slide mounting ... Newsletter 1778
  - charging for Matrix camera ... Newsletter 1998
  - documentation ... Newsletter 1431
  - full-frame camera for 35mm ... Newsletter 1948
  - LOGO routine revised ... Newsletter 1402
  - test version
    - SYS2.PLOTPKG.SLIDES ... Newsletter 1419

- Small computers
  - CAMAC controller being developed ... Newsletter 1453
  - data acquisition ... Newsletter 1453
  - digital instrumentation ... Newsletter 1453
  - inventory of in progress ... Newsletter 1453
  - maintenance ... Newsletter 1453
  - newsletter and seminars ... Newsletter 1454
  - RS-11/M documentation ... Newsletter 1453
  - spare parts to be stocked ... Newsletter 1453
- SMOOTH ... Newsletter 1358
- SNA ... Newsletter (see Systems Network Architecture)
- Softerm II terminal emulator for Apple II computers ... Newsletter 1900
- Software clinic available ... Newsletter 1363
- Software packages, removal policy for non-production versions ... Newsletter 1498
- SORT
  - computer-based training (CBT) courses available in CMS ... Newsletter 2394
  - new version of DFSORT in Wylbur ... Newsletter 2293
- SORT/MERGE ... Newsletter (see MVS, DFSORT)
  - available for testing ... Newsletter 1724, Newsletter 1753, Newsletter 1763
  - available for testing in MVS ... Newsletter 1934
  - becomes production on 10/8/84 ... Newsletter 1934
  - becomes production on 5/16/83 ... Newsletter 1763
  - DFSORT replaces ... Newsletter 2087
  - less costly than VM/SP SORT ... Newsletter 1767
- SORTF
  - facility in VM/SP ... Newsletter 1447
  - MVS batch preferred for large sorts ... Newsletter 1767
- Spare parts (computer) available from Electronics ... Newsletter 1762
- SPCAL580
  - old CalComp plotter decommissioned ... Newsletter 2503
- SPCAL780
  - old CalComp plotter decommissioned ... Newsletter 2503
- SPCAL936
  - old CalComp plotter decommissioned ... Newsletter 2503
- Speakeasy
  - CMS version upgraded ... Newsletter 1396, Newsletter 1432, Newsletter 1577
  - converting from Speakeasy III to Speakeasy IV Delta ... Newsletter 2076, Newsletter 2078
  - converting from Speakeasy III to Speakeasy IV Delta+ ... Newsletter 2332
  - converting from Version IV Beta+ to Delta ... Newsletter 2076
  - differences between Pi and Omicron versions ... Newsletter 1825
  - differences between Speakeasy III and Speakeasy IV ... Newsletter 2332
  - IV Beta+ version available for testing in CMS ... Newsletter 1948
  - IV Version Epsilon available for testing in CMS ... Newsletter 2526
  - New versions available for testing ... Newsletter 1412
  - Omicron version becomes production ... Newsletter 1577
  - OS/MVT batch and TSO versions to be phased out ... Newsletter 1578
  - Pi version available for testing in CMS ... Newsletter 1793
  - Pi version becomes production ... Newsletter 1825
  - Pi version not downward compatible with Omicron ... Newsletter 1793, Newsletter 1825
  - translate tables changing ... Newsletter 2344
  - upgraded to Version Nu+ ... Newsletter 1457
  - Version III Pi to be removed from CMS ... Newsletter 2076
  - Version IV Beta+ to be removed from CMS ... Newsletter 2076
  - Version IV Delta available for testing in CMS ... Newsletter 2076
  - Version IV Delta+ available for testing in CMS ... Newsletter 2332
  - Version IV production postponed ... Newsletter 1984
- Speaker phones
  - installation of ... Newsletter 2018
- SPEAKLIB
  - converting from Beta+ MACLIB ... Newsletter 2076
  - exec to maintain Speakeasy libraries ... Newsletter 2076
  - moving Speakeasy III objects into ... Newsletter 2076
  - saving Speakeasy objects in ... Newsletter 2076
- SPFVERS11
  - Versatec decommissioning planned ... Newsletter 2503
- Split plot occurrence reduced ... Newsletter 1597
- Spool policy changed ... Newsletter 1575
- SQL
  - computer-based training courses available in CMS ... Newsletter 2479
- Standby priority ... Newsletter 790, Newsletter 849, Newsletter 1343
  - ASP internal priority number changed ... Newsletter 1417
  - jobs eligible to run more on weekends ... Newsletter 1596
  - November sale ... Newsletter 1598
  - scheduling of work ... Newsletter 1483
- START, logon procedure ... Newsletter 641
- Statistical Analysis System
  - videotapes available ... Newsletter 2566
- Statistical Analysis System (SAS)
  - Base SAS for IBM Personal Computer ... Newsletter 2399
  - CMS SAS79.3 ... Newsletter 1469
  - CMS SAS79.5 ... Newsletter 1588, Newsletter 1639
  - computer-based training (CBT) courses available in CMS ... Newsletter 2394
  - course ... Newsletter 1124, Newsletter 1456
  - documentation ... Newsletter 1431, Newsletter 1513, Newsletter 1592
  - Econometrics and Time Series Library available in MVS ... Newsletter 1994
  - four procedures available with SAS82.3 ... Newsletter 2098
  - ISSCO metafiles with SAS/Graph in SAS 5 ... Newsletter 2281, Newsletter 2282, Newsletter 2283
  - libraries renamed ... Newsletter 1410
  - movement of datasets on MVS batch TSPERM (TSP60n) volumes ... Newsletter 2362
  - MVS SAS79.5 ... Newsletter 1639
  - Newsletter ... Newsletter 1026
  - OS SAS79.3 ... Newsletter 1410
  - OS SAS79.5 ... Newsletter 1559, Newsletter 1588, Newsletter 1639
  - SAS/Graph available in CMS ... Newsletter 2046
  - SAS/Graph option to expire ... Newsletter 1675
  - SAS/Stat for IBM Personal Computer ... Newsletter 2399
  - SAS5.16 becomes production version ... Newsletter 2335
  - SAS5.16 default changes ... Newsletter 2350
  - SAS79.6 available for testing in CMS and batch ... Newsletter 1753
  - SAS79.6 becomes production version ... Newsletter 1796
  - SAS82.3 available for testing in batch ... Newsletter 1827
  - SAS82.3 becomes production version ... Newsletter 1893
  - SAS82.4 available for testing in batch ... Newsletter 1920
  - SAS82.4 system defaults ... Newsletter 1961
  - Tellagraf ... Newsletter 1372
  - Version 5 available for testing in CMS and MVS batch ... Newsletter 2189
  - Version 5.16 available for testing in CMS and MVS batch ... Newsletter 2281
- Statistical Analysis System Full-Screen Product (SAS/FSP) available in CMS ... Newsletter 2098
- Statistical Package for the Social Sciences (SPSS)
  - documentation ... Newsletter 1142, Newsletter 1163, Newsletter 1279
  - Newsletter ... Newsletter 1213
  - Release 8.0 ... Newsletter 1279, Newsletter 1339, Newsletter 1386
  - Release 8.1 ... Newsletter 1450
- Statistical Packages ... Newsletter SAS (see Statistical Analysis System), Newsletter SPSS (see Stat. Pack. for the Soc. Sci.), Newsletter BMDP (see Biomedical Computer Programs)
- Statistics
  - Computing Center Use in Dollars by Cost Center replaced ... Newsletter 2601
  - interactive workload corrections ... Newsletter 1755
  - reduced ... Newsletter 1537
  - revision ... Newsletter 1335, Newsletter 1180
  - workload ... Newsletter 1951
  - workload corrections ... Newsletter 1870, Newsletter 1918
  - workload page revised ... Newsletter 1770
- STATUS message delays ... Newsletter 1372
- STEPLIB DD statement
  - MVS and OS/MVT differences when used with JOBLIB ... Newsletter 1638
- Storage occupancy
  - charges revised ... Newsletter 1463
  - CMS limits increased ... Newsletter 2134
  - VM/SP charges for ... Newsletter 1401
- STORECAT ... Newsletter 2500
- STORECATLG
  - Stores Catalog online in VM/SP ... Newsletter 1447
- Stores Catalog ... Newsletter 2500
- STRINGS ... Newsletter 972
- STRT LOGON procedures added ... Newsletter 995
- Structural Analysis System 6 (SAP6)
  - assistance limited to general usage ... Newsletter 2066
- SuperCalc ... Newsletter 1706
- SuperImage graphics software
  - hardcopy output ... Newsletter 2546
- SuperImage 1.5 upgrade now available ... Newsletter 2598
- SuperImage/SuperChart graphics software ... Newsletter 2456, Newsletter 2490
- SURFACE II
  - CMS EXEC ... Newsletter 1478
  - contouring and surface display package ... Newsletter 1478
- Symbolic algebra system, ASHMEDAI ... Newsletter 832
- SYSOUT class
  - classes defined at ANL ... Newsletter 1647
  - on //*DATASET CLASS ... Newsletter 1647
  - on DD statement ... Newsletter 1647
  - on JOB MSGCLASS ... Newsletter 1647
  - overriding parameters ... Newsletter 1647, Newsletter 1649
  - punched output classes B and C ... Newsletter 1647
  - to be discontinued 2/5/79 ... Newsletter 1245
- SYSOUT datasets ... Newsletter (see SYSOUT class)
  - control statement hierarchy ... Newsletter 1649
  - controlling in JES3 ... Newsletter 1649
  - output processing defaults ... Newsletter 1649
  - overriding parameters ... Newsletter 1647, Newsletter 1649
  - punched output classes B and C ... Newsletter 1647
  - specifying SYSOUT class ... Newsletter 1647
  - suppressing output with Class Z ... Newsletter 1647
- SYSOUT=overriding ... Newsletter 581
- Syspub
  - current versions ... Newsletter 1403
  - to be replaced by Generalized Markup Language (GML) ... Newsletter 2192, Newsletter 2215
- System catalog movement ... Newsletter 1177
- System 2000 ... Newsletter 741, Newsletter 817
  - batch version moved to 3033 ... Newsletter 1224
  - database ... Newsletter 966
  - indirect update files, warning ... Newsletter 1051
  - vendor maintenance discontinued ... Newsletter 1950
  - Version 10.1 ... Newsletter 1816
  - Version 2.80 ... Newsletter 1111, Newsletter 1131, Newsletter 1141

- Systems Network Architecture (SNA)
  - Kermit commands automate login for ... Newsletter 2612
  - replacing VM/Pass-Through ... Newsletter 2252
- SYS1.AMDLIB ... Newsletter 479, Newsletter 489, Newsletter 843, Newsletter 1344
  - changes ... Newsletter 651, Newsletter 678, Newsletter 924, Newsletter 1082, Newsletter 1133, Newsletter 1358, Newsletter 1597, Newsletter 1652
- SYS1.AMDLIBX ... Newsletter 1344
- SYS1.AMDLIB2 ... Newsletter 1652
- SYS1.MACLIB ... Newsletter 1610
- SYS1.PROCLIB2
  - changes ... Newsletter 1608, Newsletter 1742
- SYS1.TEKLIB ... Newsletter 706, Newsletter 796, Newsletter 814
- SYS2.AMDLIB ... Newsletter 873, Newsletter 891, Newsletter 893
  - additions ... Newsletter 1214
  - changes ... Newsletter 1358
  - constrained minimization routines added to ... Newsletter 1423
  - dataset name changed ... Newsletter 1652
  - elliptic PDE solver added ... Newsletter 1164
  - in VM/SP ... Newsletter 1380
- SYS2.IMSLIB ... Newsletter 1008, Newsletter 1652
- SYS2.NAGLIB ... Newsletter 1652
- SYS2.TEKLIB ... Newsletter 706, Newsletter 796, Newsletter 814
  - RESET renamed ... Newsletter 718
- S33A, access to 2314 disks eliminated ... Newsletter 1388
- S33B
  - being removed on 9/30/88 ... Newsletter 2582, Newsletter 2601
  - now has access to 2400-series tapes ... Newsletter 1391
  - will benefit from Red 3033 memory expansion ... Newsletter 1547
  - will have access to setup 2314's ... Newsletter 1388

- TABLES option (Version 5.4) ... Newsletter 2146
- Tape
  - available in UNICOS ... Newsletter 2517
  - backup ... Newsletter 2141, Newsletter 2213
  - BLP to be discontinued 7/11/83 ... Newsletter 1777, Newsletter 1790
  - cleaning ... Newsletter 2267
  - data ownership ... Newsletter 1448
  - data protection for ... Newsletter 1464
  - disaster backup tape storage ... Newsletter 2213
  - drives (800 bpi) no longer available ... Newsletter 1572
  - dump ... Newsletter 938
  - dump data migration instructions ... Newsletter 1143
  - I/O error message changes ... Newsletter 1023, Newsletter 1064
  - I/O error recovery ... Newsletter 1023, Newsletter 1064
  - library ... Newsletter 891, Newsletter 1454
  - library management package plans ... Newsletter 1777, Newsletter 1826, Newsletter 1910, Newsletter 1983, Newsletter 2005
  - library management system goes production 3/18/85 ... Newsletter 2019
  - lifetime of ... Newsletter 2267
  - mounting in CMS ... Newsletter 1807
  - mounting procedure in VMS ... Newsletter 2414
  - MVS WRIT800 and TAPE800 generic names removed ... Newsletter 2442
  - new tape copy utilities ... Newsletter 1880
  - new VM/SP blocksize for ... Newsletter 1394
  - no-write rings for ... Newsletter 1464
  - owner notification procedures before Tape Purge ... Newsletter 1448
  - personal reels ... Newsletter 684, Newsletter 694, Newsletter 891
  - purge requests ... Newsletter 1448
  - RACF protection available for testing ... Newsletter 1777
  - read-only access from Fortran ... Newsletter 2035
  - reels (magnetic) ... Newsletter 871, Newsletter 1112
  - releasing unneeded ... Newsletter 2123, Newsletter 2513
  - remote storage in Building 203 vault ... Newsletter 2213
  - save requests ... Newsletter 582, Newsletter 1448
  - secure labels for ... Newsletter 1464
  - setup procedures ... Newsletter 1369
  - storage ... Newsletter 617
  - to fiche ... Newsletter (see Microfiche printer support)
  - to fiche (see Microfiche printer support) ... Newsletter 1572
  - using in MVS batch jobs ... Newsletter 1609, Newsletter 1638
  - utility programs unavailable in MVS ... Newsletter 1618
  - 2400-series now accessible to S33B ... Newsletter 1391
  - 7-track tape drives to be removed ... Newsletter 2184
- Tape (ASCII) standard labeled ... Newsletter 1129
- Tape (scratch), JCL changes required in MVS ... Newsletter 1658
- Tape Librarian
  - new location ... Newsletter 1729
- Tape-to-printer service ... Newsletter 1668, Newsletter 1702
- TAPELIBR, volume sequence number added ... Newsletter 2429
- TCP/IP
  - access to Cray X-MP/14 available ... Newsletter 2568
  - conversion to domain names on the Internet ... Newsletter 2568
  - Cray UNICOS testing ... Newsletter 2527
- Tektronix
  - manuals ... Newsletter 589
  - subroutine library change ... Newsletter 718
  - systems datasets renaming ... Newsletter 796
  - terminal graphics drivers ... Newsletter 2183
  - terminals ... Newsletter 520, Newsletter 706, Newsletter 796
  - terminals, cursor display ... Newsletter 733, Newsletter 1419
  - 4006 terminal ... Newsletter 796
  - 4010 terminal ... Newsletter 796
  - 4014 terminal ... Newsletter 706, Newsletter 955
- Telenet
  - network connection removed ... Newsletter 1554
  - to be replaced by Tymnet ... Newsletter 1507
- Telephone
  - access (offsite) to Argonne computers ... Newsletter 2325
  - Argonne directory available in CMS ... Newsletter 1684
  - Argonne directory supplement ... Newsletter 2335
  - cellular rates ... Newsletter 2365
  - FY1987 rates ... Newsletter 2275
  - PBX update ... Newsletter 2325
- Tellagraf ... Newsletter 1354, Newsletter 1372
  - accessing VM/SP test version ... Newsletter 1396, Newsletter 1484
  - Advanced Techniques Seminar ... Newsletter 1775
  - Argonne Logo (new) available ... Newsletter 1815
  - Argonne Logo reinstated in ... Newsletter 1478
  - available on the central VAX 8700 ... Newsletter 2426
  - BANKDATA OPTION ... Newsletter 1716
  - computer-based training (CBT) course available in CMS ... Newsletter 2394
  - documentation ... Newsletter 1431
  - installation-dependent information ... Newsletter 1651
  - new version available for testing ... Newsletter 1478
  - online HELP available ... Newsletter 1651
  - Pinpoint option ... Newsletter 2233, Newsletter 2266
  - Pinpoint workstation reference cards ... Newsletter 2255
  - profile file ... Newsletter 2374
  - sources for 50 sample plots ... Newsletter 1478
  - supplement to manuals available ... Newsletter 1467
  - translate tables changing ... Newsletter 2344
  - use of E format input ... Newsletter 1380
  - using Apple LaserWriter ... Newsletter 2335
  - using 5835XP in CMS ... Newsletter 2439
  - using 5835XP in VAX/VMS ... Newsletter 2439
  - Version 4.0 becomes production version ... Newsletter 1587
  - Version 4.1 available for testing ... Newsletter 1716
  - Version 4.1 becomes production version ... Newsletter 1792
  - Version 4.1 color table ... Newsletter 1779
  - Version 4.5 available for testing ... Newsletter 1835
  - Version 4.5 becomes production version ... Newsletter 1878
  - Version 5.0 ... Newsletter 1998
  - Version 5.0 uses ISSCO device drivers ... Newsletter 2044
  - Version 5.4 available for testing ... Newsletter 2118
  - Version 5.4 becomes production version ... Newsletter 2146
  - Version 5.4 TABLES option ... Newsletter 2118
  - Version 6.0 available for testing ... Newsletter 2233
  - Version 6.0 becomes production version ... Newsletter 2266
  - Version 6.0 PostScript output ... Newsletter 2226
  - Version 6.1 available for testing in CMS ... Newsletter 2502
- TELLAGRAF command ... Newsletter 2426

- TEMP
  - conversion to IBM 3380 disks in MVS ... Newsletter 2061
  - conversion to 3380 disks in MVS ... Newsletter 2029
- Terminals ... Newsletter (see Office automation)
  - Apple II Personal Computer as ... Newsletter 1660
  - Apple IIe Personal Computer as ... Newsletter 1900
  - ASCII required settings ... Newsletter 1795
  - ASCII simulated as IBM 3270 ... Newsletter 1721, Newsletter 1769, Newsletter 1817, Newsletter 2411
  - CP/M personal desktop computer as ... Newsletter 1707
  - DEC recommendations ... Newsletter 1932
  - Hydra Protocol Converter available for testing ... Newsletter 2532
  - Hydra Protocol Converter recommended for IBM 3270 emulation ... Newsletter 2411
  - IBM Personal Computer as ... Newsletter 1659, Newsletter 1891
  - IBM Personal Computer simulated as IBM 3270 ... Newsletter 1891, Newsletter 2236
  - IBM 3277's to be tested ... Newsletter 1417
  - messages revised to include operator messages ... Newsletter 1468
  - problem (ADM-3) ... Newsletter 1227
  - recommended ... Newsletter 1821
  - recommended modems for ... Newsletter 1875
  - support of 3270-type cluster controllers ... Newsletter 1518
  - X.25 concentrator operation ... Newsletter 1687
- TEST option of Fortran G1 Compiler ... Newsletter 1422
- TESTCMS execs ... Newsletter 2480
- TESTFORT
  - class scheduled ... Newsletter 1519
  - for debugging CSMP programs ... Newsletter 1487
  - incompatible with VS Fortran 4.1 ... Newsletter 2267
  - use with Fortran G1 and VS Fortran ... Newsletter 1836
  - Version 2.2 becomes production version in VM/SP ... Newsletter 1836
- TESTSERV ... Newsletter 2034
- TESTSIM
  - SIM3278 available for testing as ... Newsletter 1891, Newsletter 2171
- TeX now available on VAX 8700 computer ... Newsletter 2535
- Texet electronic publishing system ... Newsletter 2478
- THTB ... Newsletter (see Transient Heat Transfer-B)
- Timing routines
  - accuracy of ... Newsletter 1224
  - ITIME ... Newsletter 874, Newsletter 1224
  - TLEFT ... Newsletter 1224
- TITLES fiche-titling program ... Newsletter 659
- TLEFT
  - replaced in existing overlaid load modules ... Newsletter 1592
  - routine revised to run in OS/MVT and MVS ... Newsletter 1558
- TN Print Train
  - selecting with SYSOUT Class T ... Newsletter 1647
- tn3270 program
  - available for Apple Macintosh personal computers ... Newsletter 2615
- TP ... Newsletter (see tape-to-printer service)
- TPFICHE command ... Newsletter (see Microfiche printer support)
- Transient Heat Transfer-B (THTB)
  - assistance limited to general usage ... Newsletter 2066
  - bug corrected ... Newsletter 1412
  - new features available ... Newsletter 1498
  - new version ... Newsletter 1275
  - new version available in VM/SP ... Newsletter 1498
  - new version available on batch ... Newsletter 1498
  - updated ... Newsletter 714
- Translate tables
  - command changes under SP5 ... Newsletter 2480
  - revisions in ASCII-EBCDIC ... Newsletter 2344, Newsletter 2371
- TSO
  - &ACCOUNT ... Newsletter 856
  - &DESTCODE ... Newsletter 856
  - &USER ... Newsletter 856
  - ASCII terminals ... Newsletter 985
  - ASM ... Newsletter 856
  - assembler prompters ... Newsletter 719
  - BACKLOG command ... Newsletter 784
  - BATCHRUN command ... Newsletter 707
  - BDELETE ... Newsletter 856
  - BIMPORT ... Newsletter 856
  - BRETAIN ... Newsletter 856
  - character translate tables ... Newsletter 985
  - CLIST FTX added ... Newsletter 1047
  - CNOTE ... Newsletter 601
  - CNTDIR command ... Newsletter 856
  - commands deleted ... Newsletter 1683
  - commands made EDIT subcommands ... Newsletter 600, Newsletter 695
  - computer-based training course available in CMS ... Newsletter 2479
  - CONCAT command ... Newsletter 630
  - COPY command ... Newsletter 695
  - COPY command modified ... Newsletter 697
  - dataset types ... Newsletter 601
  - DATETIME command ... Newsletter 857
  - DECONCAT command ... Newsletter 630
  - DELETE command ... Newsletter 630
  - dial-up lines (additional) ... Newsletter 1186
  - DT command ... Newsletter 857
  - DUP command ... Newsletter 695
  - EDIT default tables ... Newsletter 601
  - EDIT editor ... Newsletter 1053
  - EDIT subcommands ... Newsletter 600, Newsletter 695
  - EDIT 33E ABEND ... Newsletter 601
  - editors' performances ... Newsletter 1053
  - EXEC enhancements ... Newsletter 856
  - FREE command ... Newsletter 630
  - FREEALL command ... Newsletter 630
  - Graphics 1.2 facilities not available on ... Newsletter 1419
  - HELP command ... Newsletter 614
  - IF command ... Newsletter 614
  - in MVS ... Newsletter 1683, Newsletter 1724
  - interactive prompter ... Newsletter 1244
  - interim service planned ... Newsletter 1473
  - INVOKE command ... Newsletter 1047
  - LIBGET command ... Newsletter 1047
  - LIBINDEX command ... Newsletter 1047
  - Librarian ... Newsletter 747
  - LIBSAVE command ... Newsletter 1047
  - LINENO command ... Newsletter 695
  - LISTR command ... Newsletter 830
  - LISTRC command ... Newsletter 641
  - LISTSP command ... Newsletter 614
  - local commands will not be carried forward in MVS ... Newsletter 1683
  - LOCATE command ... Newsletter 631
  - LOGON change ... Newsletter 919
  - logon procedures ... Newsletter 641, Newsletter 995
  - MOVE command ... Newsletter 695
  - moved to red 3033 11/25/80 ... Newsletter 1489, Newsletter 1494
  - MSG operand added to FREE,DELETE ... Newsletter 630
  - MVS conversion plans ... Newsletter 1506, Newsletter 1683, Newsletter 1724
  - MVS conversion set for 1/17/83 ... Newsletter 1732
  - MVS TSO availability ... Newsletter 1749
  - new 1200 baud lines added ... Newsletter 1047
  - nonprime charges raised ... Newsletter 1458
  - off-site usage ... Newsletter 759
  - OS SAS79.3 access on ... Newsletter 1410
  - OS/MVT service terminated on 4/11/83 ... Newsletter 1749
  - overusage degrades system ... Newsletter 1494
  - phone numbers changed ... Newsletter 1489
  - PLICTUT command ... Newsletter 630
  - procedure for reporting problems ... Newsletter 1408
  - QED editor ... Newsletter 1053
  - region size changes, evenings ... Newsletter 1047
  - REGION 350K ... Newsletter 576
  - REGION 70K ... Newsletter 736
  - response slower on red 3033 ... Newsletter 1494
  - ROUTE command ... Newsletter 663
  - Script ... Newsletter 763
  - Script versions unchanged ... Newsletter 1403
  - Script versions updated ... Newsletter 1423
  - STATUS logon procedure ... Newsletter 588
  - System 2000 ... Newsletter 817
  - TAB key ... Newsletter 630
  - telephone nos. (new) ... Newsletter 1313
  - terminal problem (ADM-3) ... Newsletter 1227
  - TNOTE command ... Newsletter 641
  - to run on virutal machine ... Newsletter 1473
  - TSOHELP procedure ... Newsletter 1047
  - WHOHAS command ... Newsletter 614
  - WHOIS command ... Newsletter 830
  - Wylbur editor ... Newsletter 1053
  - 4800 baud transmission ... Newsletter 1227
  - 972-7999 and -8000 numbers disconnected ... Newsletter 1513
- TSOHELP procedure ... Newsletter 1047
- TSPERM
  - being replaced by IBM 3380 disks ... Newsletter 2393
  - datasets moved to PERM ... Newsletter 2456
  - no longer defined ... Newsletter 2456
  - removed through phased disk replacement ... Newsletter 2456
  - schedule for replacement ... Newsletter 2393, Newsletter 2426
- TSPGRM
  - being replaced by IBM 3380 ... Newsletter 2343
- TSP60n
  - datasets moved to PERM ... Newsletter 2456
  - no longer defined ... Newsletter 2456
  - removed through phased disk replacement ... Newsletter 2456
- TSTEMP
  - conversion to IBM 3380 disks in MVS ... Newsletter 2061
  - conversion to 3380 disks in MVS ... Newsletter 2029
  - new IBM 3380 disk storage ... Newsletter 2047
- Tutorial program PL/I ... Newsletter 629
- Tymnet
  - charging rates to be revised ... Newsletter 1620
  - minimum connect charges ... Newsletter 1589
  - network connection installed ... Newsletter 1554
  - new service (TYMUSA) ... Newsletter 2614
  - replaces Telenet line ... Newsletter 1507
  - service now includes all Argonne computers ... Newsletter 2443
- TYMUSA ... Newsletter 2614
- Typesetter
  - attached to Argonne computer network ... Newsletter 2381
- Typesetting (computer)
  - service ... Newsletter 2262

- UCC-1 ... Newsletter 2005
  - disaster backup tape vault management ... Newsletter 2213
  - disaster backup tapes ... Newsletter 2213, Newsletter 2214
  - goes production 3/18/85 ... Newsletter 2019
  - reading other users' tapes ... Newsletter 2035
  - reading unexpired tape datasets ... Newsletter 2035
  - releasing unneeded tapes ... Newsletter 2123
  - vault management ... Newsletter 2213
- Unconstrained minimization, MINIPACK1 routines for ... Newsletter 1423
- Unconstrained optimization problems, use of MINPACK-1 for ... Newsletter 1468
- Undefined datasets ... Newsletter 1347

- UNICOS
  - classes ... Newsletter 2465
  - commands
    - ja ... Newsletter 2579
    - jad, jar ... Newsletter 2579
    - tape processing ... Newsletter 2579
  - Cray CFT77 Fortran compiler now available ... Newsletter 2501
  - documentation available ... Newsletter 2518
  - file transfer between UNICOS and MVS ... Newsletter 2581
  - file transfer between UNICOS and VAX/VMS ... Newsletter 2581
  - IMSL Edition 10.0
    - MATH/LIBRARY ... Newsletter 2563
    - SFUN/LIBRARY ... Newsletter 2563
    - STAT/LIBRARY ... Newsletter 2563
  - IMSL Edition 10.0 Library available ... Newsletter 2563
  - libraries
    - renamed for UNICOS 4.0 ... Newsletter 2561
    - shell variables changed ... Newsletter 2561
  - NAG Mark 12 Library available ... Newsletter 2562
  - NQS batch job resource defaults ... Newsletter 2581
  - NQS batch job resource limits ... Newsletter 2581
  - NQS batch job scheduling by priority ... Newsletter 2580
  - NQS batch job scheduling changes ... Newsletter 2580
  - NQS batch job service queues ... Newsletter 2580
  - operating schedules on Cray ... Newsletter 2465
  - segldr
    - directives, DUPENTRY ... Newsletter 2561, Newsletter 2562, Newsletter 2563
    - directives, LIB ... Newsletter 2562, Newsletter 2563
    - libraries, ANLUTIL ... Newsletter 2561
    - libraries, Disspla ... Newsletter 2561
    - libraries, IMSL ... Newsletter 2561, Newsletter 2563
    - libraries, NAG ... Newsletter 2561, Newsletter 2562
    - libraries, pathnames ... Newsletter 2561, Newsletter 2562, Newsletter 2563
    - libraries, shell variables ... Newsletter 2561, Newsletter 2562, Newsletter 2563
    - libraries, SLATEC ... Newsletter 2561
    - libraries, specifying ... Newsletter 2561
    - options ... Newsletter 2562, Newsletter 2563
  - tapes available ... Newsletter 2517
  - update ... Newsletter 2477
- UNICOS 3.0
  - available on Cray X-MP/14 ... Newsletter 2465
- UNICOS 3.0.11
  - in production ... Newsletter 2500
- UNICOS 4.0
  - acquire/fetch/dispose default file format to change ... Newsletter 2581
  - commands
    - scpqsub, scpreroute ... Newsletter 2579
    - uscpqsub, uscproute ... Newsletter 2579
  - commands renamed in ... Newsletter 2579
  - conversion schedule for ... Newsletter 2560
  - converting from UNICOS 3.0 ... Newsletter 2579
  - in production ... Newsletter 2610
  - job accounting command changes ... Newsletter 2579
  - using tapes in ... Newsletter 2579
- Unit test
  - of MVS system ... Newsletter 1407, Newsletter 1533, Newsletter 1553
  - schedule revised ... Newsletter 1574
- Unit Test Program for MVS ... Newsletter 1377
- Unix
  - available on VAX 8700 ... Newsletter 2470
- Upgrades
  - computer available from Electronics ... Newsletter 1958
  - personal computer available from Electronics ... Newsletter 2149
- User assistance
  - consulting available through electronic mail ... Newsletter 2543
- User facilities, IBM 3277 terminal installed ... Newsletter 1417
- User procedures, for reporting interactive system problems ... Newsletter 1408
- User Services consulting ... Newsletter 1005
- User training courses, multimedia ... Newsletter 1378
- User's termination delayed by Personnel ... Newsletter 1553
- USERDETAIL command
  - available on VAX 8700 ... Newsletter 2473
- Userids, of program product minidisks ... Newsletter 1395
- Utilities
  - changes required for moved catalogs ... Newsletter 2343
- U105BW driver on FR80 105mm camera ... Newsletter 1419

- V/Spell available in VM/SP ... Newsletter 1840
- V/Spell to be discontinued ... Newsletter 2617
- VAULTNL procedure to create disaster backup tapes ... Newsletter 2214
- VAULTSL procedure to create disaster backup tapes ... Newsletter 2214
- VAX Supercomputer Gateway available for general use ... Newsletter 2528
- VAX Supercomputer Gateway testing ... Newsletter 2516
- VAX 8700 computer system ... Newsletter 2343, Newsletter 2359, Newsletter 2371, Newsletter 2379
  - able to submit batch jobs without RACF password ... Newsletter 2444
  - ANSYS available on ... Newsletter 2570
  - arithmetic features ... Newsletter 2398
  - batch queue defaults ... Newsletter 2397
  - batch queue names ... Newsletter 2586
  - cluster services ... Newsletter 2412
  - cluster upgraded to Version 4.7 ... Newsletter 2550
  - cluster upgraded to Version 5.0 ... Newsletter 2599
  - computer-based instruction
    - available for Datatrieve ... Newsletter 2571
    - available for EVE and Datatrieve ... Newsletter 2519
  - early user testing ... Newsletter 2397
  - G Floating-point NAG library available ... Newsletter 2504
  - GNU-EMACS text editor available ... Newsletter 2587
  - graphics available ... Newsletter 2426
  - group manager role created ... Newsletter 2505
  - hardware resources ... Newsletter 2397
  - Kermit commands automate login for ... Newsletter 2612
  - Language Sensitive Editor available ... Newsletter 2491
  - LaTeX now available ... Newsletter 2535
  - MACSYMA available on ... Newsletter 2534
  - Mass-11 word processor available ... Newsletter 2571
  - MATHDOC available on ... Newsletter 2415
  - NAG Mark 11 Library to be removed ... Newsletter 2551
  - online Desk Calculator ... Newsletter 2535
  - performance comparison with VAX-11/780 ... Newsletter 2397
  - rates approved ... Newsletter 2413
  - remote printer service available ... Newsletter 2534
  - scratch disk policy ... Newsletter 2414
  - SLATEC library available ... Newsletter 2398
  - SLATECG library available ... Newsletter 2398
  - software distribution procedure ... Newsletter 2427
  - software upgrades ... Newsletter 2473
  - TeX now available ... Newsletter 2535
  - text editors available ... Newsletter 2586
  - Unix available on ... Newsletter 2470
  - user resource quotas ... Newsletter 2397
  - USERDETAIL command available on ... Newsletter 2473
  - using G-floating point format ... Newsletter 2398
- VAX-11/750 computer
  - NJE link to IBM computers upgraded to 50 kilobaud ... Newsletter 2374
- VAX-11/780
  - performance comparison with VAX 8700 ... Newsletter 2397
  - system installed in HEP ... Newsletter 1495

- VAX/VMS
  - command line editing ... Newsletter 2468, Newsletter 2469
  - command line recall ... Newsletter 2469
  - Computer Graphics Metafile (CGM) graphics capabilities available ... Newsletter 2566
  - disk space expanded ... Newsletter 2413
  - electronic mail ... Newsletter 1870
  - electronic mail between VAX/VMS and IBM VM/SP ... Newsletter 1703
  - general sequential file transfer ... Newsletter 1705
  - index (NEWSLETTER and user documents) available ... Newsletter 2048
  - LOOKUP service ... Newsletter 2048
  - MAIL command ... Newsletter 2072
  - NJE Network nodes ... Newsletter 1686, Newsletter 1753, Newsletter 1906, Newsletter 1928, Newsletter 1997, Newsletter 2010
  - NJE network software enhanced ... Newsletter 2315
  - NJE network software upgraded ... Newsletter 2066
  - NJE networking performance upgraded ... Newsletter 1627
  - NJE services now available to DECnet nodes ... Newsletter 2584
  - NJE translate tables changing ... Newsletter 2344
  - print capability extended ... Newsletter 2491
  - program size expanded ... Newsletter 2413
  - SEND command ... Newsletter 2072
  - shared interactive computing services ... Newsletter 2139
  - software distribution kit sharing procedure extended ... Newsletter 2490
  - tape mounting procedure ... Newsletter 2414
  - users may submit account alias for MVS batch jobs ... Newsletter 2518
  - using 5835XP with Disspla ... Newsletter 2439
  - using 5835XP with Tellagraf ... Newsletter 2439
- Versatec plotter
  - available ... Newsletter 1268, Newsletter 1279
  - performance of ... Newsletter 1397
  - planned decommissioning ... Newsletter 2440, Newsletter 2503
  - replacement to be installed ... Newsletter 2284
  - users encouraged to move ... Newsletter 2335
- VERS11
  - Versatec decommissioning planned ... Newsletter 2503
- Viewgraphs
  - available from Matrix camera ... Newsletter 2489
  - schedule ... Newsletter 2529
- Virtual machine storage
  - increased ... Newsletter 1368
- Virtual Machine System Product (VM/SP)
  - installed ... Newsletter 1522
  - new edition of exec language ... Newsletter 1534
  - Release 2 available for testing ... Newsletter 1684, Newsletter 1695, Newsletter 1709, Newsletter 1718, Newsletter 1735
  - Release 2 to be upgraded on 2/9/83 ... Newsletter 1735
  - Release 2 user test on 2/7/83 ... Newsletter 1735
  - Release 3 available for testing ... Newsletter 1890
  - Xedit and EXEC 2 documents ... Newsletter 1534
- Virtual Machine System Product Release 2 (VM/SP2)
  - becomes production on 11/22/82 ... Newsletter 1718
  - electronic mail commands ... Newsletter 1704
  - electronic mail to VAX/VMS ... Newsletter 1703
  - to be upgraded on 10/25/82 ... Newsletter 1695, Newsletter 1709
  - user test on 10/18/82 ... Newsletter 1695, Newsletter 1709
  - user test on 11/15/82 ... Newsletter 1718
- Virtual Machine System Product Release 3 (VM/SP3)
  - becomes production (7/9/84) ... Newsletter 1898
  - Xedit enhancements ... Newsletter 1908
- Virtual Machine System Product Release 4 (VM/SP4)
  - available for testing ... Newsletter 2134
  - becomes production version ... Newsletter 2145
- Virtual Machine System Product Release 5 (VM/SP5)
  - available for testing ... Newsletter 2515
- Virtual Storage Access Method (VSAM)
  - available in MVS ... Newsletter 1694
- Virtual Telecommunications Access Method (VTAM) ... Newsletter 2252
- VisiCalc ... Newsletter 1706
- VM/Pass-Through ... Newsletter (see PVM communications package)
  - being replaced by SNA ... Newsletter 2252
- VM/SP ... Newsletter 1273, Newsletter 1286, Newsletter (see Virtual Machine System Product)
  - accessing Disspla version ... Newsletter 1396
  - accessing Graphics minidisk ... Newsletter 1396
  - accessing old programs ... Newsletter 1395
  - accessing Script versions ... Newsletter 1403
  - accessing Tellagraf version ... Newsletter 1396
  - accessing test PL/I version ... Newsletter 1409
  - AMDLIB HELP documenataion available ... Newsletter 1551
  - AMDLIB source deck avail. ... Newsletter 1396
  - AMDLIB2 TXTLIB ... Newsletter 1380
  - ASCII terminal required settings ... Newsletter 1795
  - automatic rate change ... Newsletter 1534
  - automatic read-only access ... Newsletter 1394
  - backup of files ... Newsletter 1321
  - backup system available ... Newsletter 2044
  - batch ... Newsletter 1319
  - BLKSIZE for TAPEDUMP command ... Newsletter 1394
  - consulting (online) available ... Newsletter 1611
  - data security ... Newsletter 1715
  - database storage ... Newsletter 1321, Newsletter 1328
  - determining disk usage ... Newsletter 1528
  - determining working set size ... Newsletter 1401
  - Directory Maintenance Program Product ... Newsletter 1428
  - DIRMAINT messages ... Newsletter 1534
  - DISK DUMP command ... Newsletter 1497
  - DISK LOAD command ... Newsletter 1497
  - documentation ... Newsletter 1296, Newsletter 1431
  - dumping datasets to tape ... Newsletter 1528
  - enrollment procedures revised ... Newsletter 1875
  - error in character translation table ... Newsletter 1487
  - file system extensions ... Newsletter 1394
  - file transfer ... Newsletter 1322
  - Fortran ... Newsletter 1298
  - graphics ... Newsletter 1321, Newsletter 1372
  - graphics HELP available ... Newsletter 1467
  - HELP facility expanded ... Newsletter 1394, Newsletter 1510
  - IBM BASIC now available ... Newsletter 1811
  - index (monthly cumulative NEWSLETTER) to be discontinued ... Newsletter 1844
  - index (NEWSLETTER and user documents) available ... Newsletter 1773
  - Inquire Database Management System available ... Newsletter 1685, Newsletter 1735
  - Inquire Release 12 becomes production version 3/7/83 ... Newsletter 1744
  - Inquire Release 13.1 available for testing ... Newsletter 1841
  - Inquire Release 13.3 becomes production version 9/10/84 ... Newsletter 1936
  - LINPACK ... Newsletter 1332
  - LOGO TEXT Y2 routine revised ... Newsletter 1402
  - lower cost accounts offered ... Newsletter 1969
  - microfiche printer output ... Newsletter 1509
  - monthly cumulative NEWSLETTER index ... Newsletter 2108, Newsletter 2280, Newsletter 2446
  - moving files from OS ... Newsletter 1309
  - MVS aliases will match userid suffixes ... Newsletter 1563
  - new Wylbur test version available ... Newsletter 1476
  - NEWS ... Newsletter 1320
  - obtaining an account ... Newsletter 1298
  - PL/I ... Newsletter 1301, Newsletter 1320
  - procedure for reporting problems ... Newsletter 1
  - program product minidisks ... Newsletter 1395, Newsletter 1419
  - PROOFREAD available ... Newsletter

1840
  PVM communications package ... Newsletter 1736
  reducing storage charges ... Newsletter 1528
  Release 2 available for testing ... Newsletter 1684, Newsletter 1718
  Release 2 installed ... Newsletter 1718
  Release 3 available for testing ... Newsletter 1890
  Release 3 becomes production (7/9/84) ... Newsletter 1898
  Release 3 user test (7/2/84) ... Newsletter 1898
  Release 3 Xedit enhancements ... Newsletter 1908
  Release 4 available for testing ... Newsletter 2134
  Release 4 becomes production version ... Newsletter 2145
  SAS ... Newsletter 1372
  SAS CMS manual available ... Newsletter 1529
  SAS79.6 available for testing ... Newsletter 1753, Newsletter 1796
  Script ... Newsletter 1331
  Script, moved to own minidisk ... Newsletter 1458
  sensitive data security ... Newsletter 1715
  software packages ... Newsletter 1297
  SORTF facility in ... Newsletter 1447, Newsletter 1763
  SORTF in ... Newsletter 1767
  sorting large datasets discouraged ... Newsletter 1763, Newsletter 1767
  source deck available ... Newsletter 1396
  spool policy changed ... Newsletter 1575
  storage occupancy charges ... Newsletter 1408, Newsletter 1401
  STORECATLG available in ... Newsletter 1447
  suppressing messages ... Newsletter 1534
  SURFACE II contouring pkg. ... Newsletter 1478
  tape command improvements ... Newsletter 1394
  tape setup procedures ... Newsletter 1369, Newsletter 1807
  terminal messages ... Newsletter 1534
  THTB available in ... Newsletter 1498
  transfer of Script files ... Newsletter 1497
  use of Watfiv ... Newsletter 1511
  users will benefit from Red 3033 memory expansion ... Newsletter 1547
  V/Spell available ... Newsletter 1840
  virtual machine storage ... Newsletter 1751, Newsletter 1752, Newsletter 2201
  VM/370 spool file cleanup ... Newsletter 1368
  VNET ... Newsletter 1317
  Wylbur test version ... Newsletter 1418
  Y-disk program product EXEC ... Newsletter 1419
  ZDISK ... Newsletter 1319
  ZDISK TXTLIB file for callable subroutines ... Newsletter 1550
VM/SP2 ... Newsletter (see Virtual Machine System Product Release 2)
VM/SP5 ... Newsletter (see Virtual Machine System Product Release 5)
VM/370
  performance measurements ... Newsletter 1285
  spool file cleanup ... Newsletter 1368, Newsletter 1575
VMBACKUP
  improves minidisk data recovery ... Newsletter 1982
VMCON SYS2.AMDLIB constrained minimization routine ... Newsletter 1423
VMCON1 SYS2.AMDLIB constrained minimization routine ... Newsletter 1423
VMMCLG ... Newsletter 678, Newsletter 694
VMMLG ... Newsletter 678, Newsletter 694
VMSCHEDULE ... Newsletter 2089
  benefits ... Newsletter 2332
  new release ... Newsletter 2332
VNET ... Newsletter 1317, Newsletter 1351
  support of remote printers being tested ... Newsletter 1383
Volume backup system ... Newsletter 702, Newsletter 718
VS Cobol ... Newsletter (see Cobol)
VS COBOL II
  computer-based training courses available in CMS ... Newsletter 2559
VS Fortran
  CMS version available for testing ... Newsletter 1726, Newsletter 2075
  CMS Version 3 available for testing ... Newsletter 1792
  converting load modules to Release 4 library ... Newsletter 2190
  MVS batch available for testing ... Newsletter 2132
  MVS batch Release 3 available for testing ... Newsletter 1814
  MVS version available for testing ... Newsletter 1734
  new features in Release 4.1 ... Newsletter 2132, Newsletter 2191
  NOSDUMP option of ... Newsletter 1834, Newsletter 1836
  Release 3 becomes production version ... Newsletter 1834
  Release 3 becomes production version in CMS and MVS batch ... Newsletter 1834
  Release 4 becomes production version in CMS and MVS batch ... Newsletter 2160, Newsletter 2190
  Release 4 defaults to load mode in CMS and MVS batch ... Newsletter 2191
  Release 4 library not compatible with earlier libraries ... Newsletter 2190
  TEST option of ... Newsletter 1836
  users urged to use for portability ... Newsletter 1804
  using load mode and link mode in CMS and MVS batch ... Newsletter 2191
  Version 1.3.1 becomes production version in CMS and MVS batch ... Newsletter 1959
  Version 2.3.0 available for testing in MVS batch ... Newsletter 2567
  1.4.1 available for test ... Newsletter 2307
VSAM ... Newsletter (see Virtual Storage Access Method)
VSASM ... Newsletter 1610
VSCOPY
  renamed IEBCOPY in OS/MVT ... Newsletter 1593
VSLINK
  renamed to IEWL ... Newsletter 1619

WAIT charge reduction postponed ... Newsletter 1071
WAIT time ... Newsletter 571, Newsletter 608, Newsletter 729, Newsletter 975
  adjustment made for excessive ... Newsletter 1385
  on Cray, charge for suspended ... Newsletter 2528
  on S33B ... Newsletter 1355
Waterloo C
  Version 3.0 available for testing in CMS ... Newsletter 2515
Watfiv ... Newsletter 727
  C$DATA replaced by C$ENTRY ... Newsletter 1511, Newsletter 1674
  corrections ... Newsletter 867
  DECIMAL option allows E-, F-, or G-format ... Newsletter 1511
  free-format prints without FORMAT statements ... Newsletter 1511
  new production version (8/16/82) ... Newsletter 1674
  new release for testing ... Newsletter 1511
  new structured control statements ... Newsletter 1511
  OS/MVT Batch usage ... Newsletter 1511
  subroutine, new ... Newsletter 867
  using IMSL library routines from ... Newsletter 2204
  VM/SP usage ... Newsletter 1511
Word
  recommended for IBM Personal Computer ... Newsletter 2385
Word processors ... Newsletter (see Office automation)
Working set size, VM/SP charges for ... Newsletter 1401
Worksheet programs (electronic), benefits of ... Newsletter 1706
Workstation Evaluation and Demonstration Room ... Newsletter 1843
  unattended operation ... Newsletter 1932
Wylbur
  $WYL.EXEC file of EXECs ... Newsletter 1445
  $WYL.HELP file for EXECs ... Newsletter 1445
  accessing datasets, RACF protection ... Newsletter 1881
  ACDS messages ... Newsletter 1333
  alternate KEYWORD file entries ... Newsletter 1445
  AMDLIB HELP documentation available ... Newsletter 1551
  ASCII terminal required settings ... Newsletter 1795
  ASCII to EBCDIC translate tables to change ... Newsletter 2371
  automatic revocation of user privileges implemented ... Newsletter 1865
  backup system moved to IBM 370/195 ... Newsletter 1325
  batch job inquiry ... Newsletter 1647
  character translate table revised ... Newsletter 1446
  COLLECT option not available for Milten commands ... Newsletter 1446
  commands, ROUTE ... Newsletter 1866
  consulting (online) available in MVS ... Newsletter 1611
  control of access for datasets ... Newsletter 1881
  CPU charges increased ... Newsletter 1463
  documentation (online) for batch utilities ... Newsletter 1559
  enrollment procedures revised ... Newsletter 1875
  excessive QUEUED messages on ... Newsletter 1477
  execs, COSTCSUM ... Newsletter 1679
  execs, DATASETS ... Newsletter 1616
  execs, DOCUMENT ... Newsletter 2080
  execs, FINDDSN ... Newsletter 1459
  execs, GETFILE ... Newsletter 1650
  execs, JOBCOSTS ... Newsletter 1679
  execs, JOBLIST ... Newsletter 1628
  execs, JOBSCORE ... Newsletter 1628
  execs, LISTPRIV ... Newsletter 1835
  execs, LOADDSN ... Newsletter 1459, Newsletter 2330
  execs, LOOKUP ... Newsletter 2048
  execs, NEWJOB ... Newsletter 1585
  execs, NEWLABEL ... Newsletter 1619
  execs, NEWTLEFT ... Newsletter 1592
  execs, OFFTAPE ... Newsletter 1576
  execs, OSLOCATE ... Newsletter 1647
  execs, OVERLAY ... Newsletter 1592
  execs, PIRS ... Newsletter 2065
  execs, PRINTPS ... Newsletter 2350
  execs, PUTFILE ... Newsletter 1650
  execs, RACFCOMM ... Newsletter 1681, Newsletter 2330
  execs, SENDFILE ... Newsletter 2089
  execs, TAPECOPY ... Newsletter 1880
  execs, TAPELIBR ... Newsletter 2429
  execs, USERDETA ... Newsletter 1679
  fetch failures ... Newsletter 2498
  file size in ... Newsletter 1437
  graphics drivers at high baud rates ... Newsletter 1778
  graphics drivers for ISSCO metafiles ... Newsletter 2183
  HELP (online) facility in ... Newsletter 1437, Newsletter 1763
  HELP EXECS command ... Newsletter 1468
  HELP facility expanded ... Newsletter 1520, Newsletter 1763
  HELP online command improvements ... Newsletter 1763
  HELP WYLBUR command in VM/SP test version ... Newsletter 1418
  improvements ... Newsletter 969, Newsletter 1047, Newsletter 1287
  index (NEWSLETTER and user documents) available ... Newsletter 2048
  JES3 commands from ... Newsletter 1764
  JOB card conversion to MVS format ... Newsletter 1585
  job submission and retrieval ... Newsletter 1438
  Milten commands not available in COLLECT option ... Newsletter 1446
  multiple accounts in MVS ... Newsletter 1637
  multiple activity codes now allowed ... Newsletter 1445
  MVS system installed for testing ... Newsletter 1506
  new COLLECT option uses SHOW

  - command output ... Newsletter 1437
  - new dataset blocksizes in ... Newsletter 2029, Newsletter 2061
  - New EXECs for Library allocation and expansion ... Newsletter 1445
  - new features in Release 6.0 ... Newsletter 1686
  - new version (6.0) installed 6/28/82 ... Newsletter 1686
  - new VM/SP test version available ... Newsletter 1476
  - omission from Reference Manual ... Newsletter 1478
  - password changes ... Newsletter 1669, Newsletter 1681, Newsletter 1693, Newsletter 1708
  - performance improvements ... Newsletter 2048
  - procedure for reporting problems ... Newsletter 1408
  - program function keys in OBS ... Newsletter 1438, Newsletter 1446
  - public execs updated ... Newsletter 1468
  - PVM communications package ... Newsletter 1736
  - RACF to authorize access ... Newsletter 1669, Newsletter 1681, Newsletter 1693, Newsletter 1708
  - record size in ... Newsletter 1437
  - region changes ... Newsletter 1113
  - routing microfiche printer output ... Newsletter 1509
  - selected JES3 operator commands available ... Newsletter 1764
  - terminals ... Newsletter 942
  - user-contributed EXECs now permitted ... Newsletter 1445
  - user-defined command synonyms ... Newsletter 1438
  - using FETCH command to view MVS batch output ... Newsletter 1607
  - Version 7.0 coming soon ... Newsletter 2289
  - VM/SP test version available ... Newsletter 1418, Newsletter 1794
- Wylbur commands
  - DEFINE, for changing command names ... Newsletter 1438
  - FETCH SYSOUT class ... Newsletter 1647
  - HELP EXECS ... Newsletter 1520
  - HELP TOPICS ... Newsletter 1520
  - HELPLIB EXECs ... Newsletter 1455
  - LIST OFFLINE, SYSOUT class ... Newsletter 1647
  - ROUTE output ... Newsletter 1647, Newsletter 1649
  - RUN, use of jobparm options with ... Newsletter 1438
  - SAVE command in MVS ... Newsletter 1638
  - SAVE preserves dataset characteristics in 6.0 ... Newsletter 1686
  - SCRATCH command in MVS ... Newsletter 1638
  - SET ACCTNO accepts alias ... Newsletter 1637
  - SET ACCTNO to change activity codes ... Newsletter 1445
  - SET NOSCROLL ... Newsletter 1686
  - SET TRANSLAT ... Newsletter 2371
  - SET, new options and parameters for ... Newsletter 1438
  - SHOW TRANSLAT ... Newsletter 2371
  - SHOW, COLLECT option of ... Newsletter 1446
  - SHOW, new options for ... Newsletter 1438
- Wylbur 7.0
  - available for user testing ... Newsletter 2327
  - conversion from 6.0 ... Newsletter 2327
  - exec file enhancements ... Newsletter 2327
  - full screen editing ... Newsletter 2327
  - new commands ... Newsletter 2327
  - new features ... Newsletter 2327
  - new prefix commands ... Newsletter 2327
  - upgrade scheduled ... Newsletter 2327

- X.25
  - concentrator costs and service rates ... Newsletter 1687
  - concentrator installation and operation ... Newsletter 1687
  - enhancements ... Newsletter 1594
  - expanded access ... Newsletter 2490
  - Network standard, support planned ... Newsletter 1517
- X.400 European gateways no longer available ... Newsletter 2249
- Xedit
  - computer-based training (CBT) courses available in CMS ... Newsletter 2394
  - full screen version (Kedit) available for IBM Personal Computer ... Newsletter 2235
  - more capability than CMS Edit ... Newsletter 1534
  - new macros for column manipulation ... Newsletter 2064
  - Self-Teach available ... Newsletter 2294, Newsletter 2331
  - self-teach tutorial ... Newsletter 2331
  - V/Spell available in VM/SP ... Newsletter 1840
  - V/Spell to be discontinued ... Newsletter 2617
  - VM/SP Release 2 differences ... Newsletter 1718
- Xerox 1824 film copier
  - retirement of ... Newsletter 2309
- XNS
  - greater access to Intergraph 200 CAE system ... Newsletter 2424

- Y-disk
  - EXEC's access program product minidisks ... Newsletter 1419
  - FINDADDR EXEC ... Newsletter 1419
  - FINDMODE EXEC ... Newsletter 1419

- Z-disk
  - accessing index to ... Newsletter 1395
  - accessing policy for ... Newsletter 1395
  - accessing STORECATLG on ... Newsletter 1447
  - AMDLIB source code EXEC on ... Newsletter 1396
  - policies changed ... Newsletter 1395, Newsletter 1550
  - ZDISK TXTLIB file for callable subroutines ... Newsletter 1550
- ZDISK ... Newsletter 1319
- Zero priority
  - new job scheduling priority ... Newsletter 1417
- ZMAIL to be removed from Z-disk ... Newsletter 1704

- 1200 baud
  - half-duplex service discontinued ... Newsletter 1917
  - lines added ... Newsletter 1047
- 1403 Impact Printer
  - selecting with DEST=1403 ... Newsletter 1648
  - selecting with SYSOUT class ... Newsletter 1647

- 2314 disks
  - setup moved ... Newsletter 1391
  - to be decommissioned ... Newsletter 2133
- 2400-series
  - tape drives
    - (800 bpi) no longer available ... Newsletter 1572
  - tapes now accessible to S33B ... Newsletter 1391

- 3270
  - accessing Hydra Protocol Converter ... Newsletter 2429
  - alternatives for full screen access to central IBM systems ... Newsletter 2429
  - Hydra Protocol Converter available for testing ... Newsletter 2411
  - SIM3278 emulator ... Newsletter 2429
- 3330 disks
  - recommended dataset blocksizes ... Newsletter 2029, Newsletter 2061
  - replaced by 3380 disks in MVS ... Newsletter 2410
  - track capacity and utilization ... Newsletter 2029, Newsletter 2061
- 3350 disks
  - replaced by 3380 disks in MVS ... Newsletter 2061
  - replacement by 3380 disks in MVS ... Newsletter 2029
- 3380 database volumes ... Newsletter 1920
- 3380 disks
  - Amdahl Corporation chosen as vendor ... Newsletter 2393
  - conversion to in MVS ... Newsletter 2029, Newsletter 2061
  - data movement ... Newsletter 2393
  - dataset costs ... Newsletter 2029
  - Librarian dataset unusable on ... Newsletter 2029
  - Librarian datasets now usable on ... Newsletter 2373
  - moving Librarian master files to ... Newsletter 2373
  - recommended dataset blocksizes ... Newsletter 2029, Newsletter 2061, Newsletter 2373, Newsletter 2410
  - reorganization ... Newsletter 2595
  - replace 3330 SASCR in MVS ... Newsletter 2410
  - schedule for replacing TSPERM ... Newsletter 2393
  - testing programs ... Newsletter 2373
  - track capacity and utilization ... Newsletter 2029, Newsletter 2061, Newsletter 2373
- 3480-type tape drive acquisition ... Newsletter 2595
- 3705 communications controller
  - terminal option ... Newsletter 1358
- 3800 Page Printer
  - administrative computing impact ... Newsletter 1639
  - ASP //*FORMAT cards ... Newsletter 1198
  - channel and line default changed ... Newsletter 1391
  - default for printing unchanged ... Newsletter 1385
  - lined output available ... Newsletter 1790
  - now in production (11/1/78) ... Newsletter 1225
  - scheduling changed ... Newsletter 1385
  - selecting with DEST=3800 ... Newsletter 1648
  - selecting with SYSOUT Class L ... Newsletter 1647
  - user test ... Newsletter 1177

- 4800 baud terminal support ... Newsletter 1227

- 800 Service ... Newsletter 2348

Argonne National Laboratory
Computing and Telecommunications Division
January and February 1989

COMPUTING CENTER CLASSES

The Computing and Telecommunications Division (CTD) is offering one demonstration and six computing classes. There is no charge for attending classes unless otherwise indicated. To register, call or visit the Computing and Telecommunications Consulting Office (Building 221, Room A-139, extension 2-5405). All prospective attendees should register so that we can gauge the size of the class and notify attendees of any schedule changes. CTD will reschedule or cancel any classes with fewer than six registrants *one week* prior to the scheduled date of the class.

Obtaining the recommended documents and reading portions of them before you take a class will increase the benefits of attending the class.

INTRODUCTION TO COMPUTING FACILITIES AND SERVICES

Goals:	To develop an overview of available computing facilities and services provided by CTD.
Length of Class:	One 3-hour session
Date and Time:	January 12, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-216
Suggested Reading:	*Guide to Computing at ANL* (ANL/TM 336) *Recommended Documentation for Computer Users at ANL* (ANL/TM 379) *Guide to Telecommunications at ANL* (ANL/TM 422)
Instructor:	Rich Slade

USING COMPUTER-BASED TRAINING

Goals:	To provide a demonstration of how to use computer-based training (CBT) courses in CMS to allow prospective students to learn more about available CBT courses.
Length of Demonstration:	One hour
Date and Time:	January 13, 1989 (Friday), 9:30 a.m. to 10:30 a.m.
Location:	Building 221, Room A-261
Instructor:	Dave Leibfritz

INTRODUCTION TO WYLBUR FOR TEXT EDITING

Goals: To learn to use Wylbur, an interactive system that provides a convenient interface for MVS batch processing. To learn about the MVS batch system at Argonne (including how to compile and execute programs and obtain printer output). Wylbur is efficient, easy-to-learn, and powerful for editing data and programs and for submitting jobs for batch execution.

Length of Class: One 3-hour session

Date and Time: January 13, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-261

Suggested Reading: *SLAC Wylbur Tutorial*
OBS Wylbur Reference Manual

Instructor: Mike Thommes

INTRODUCTION TO UNICOS AND SHELL PROGRAMMING

Goals: To learn the basics of the Cray UNICOS file system, space management, and shell programming, as well as basic Unix commands.

Length of Class: Two 3-hour sessions

Dates and Times: January 24, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.
January 25, 1989 (Wednesday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *A Practical Guide to UNIX System* (0-8053-8915-6)
UNICOS Primer (SG-2010)

Instructor: Pete Bertoncini

USING THE CRAY X-MP FROM THE MVS STATION

Goals: To learn how to use the Network Queuing System (NQS) for Cray batch processing and how to submit work and to manage Cray files from the MVS front-end station so that you can submit Cray jobs from CMS, MVS, and VAX/VMS systems.

Prerequisite: "Introduction to UNICOS and Shell Programming" class or equivalent experience with Unix.

Length of Class: Two 3-hour sessions

Dates and Times: January 26, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
January 27, 1989 (Friday), 1:30 p.m. to 4:30 p.m.

Location: Building 221, Room A-216

Suggested Reading: *Guide to UNICOS at ANL* (ANL/TM 460)

Instructor: Al Hinds

INTRODUCTION TO VAX/VMS

Goals:	To learn some basic concepts of VAX/VMS (including how to logon to VMS, create files, set up subdirectories, compile and link programs, submit batch jobs, use the online HELP facilities, and access the companion computer-based instruction courses in VMS).
Length of Class:	One 3-hour session
Date and Time:	February 9, 1989 (Thursday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Instructor:	To Be Announced

USING VAX/VMS

Goals:	To learn to use the VAX/VMS system. This class will include suggestions for writing basic DCL command procedures (including a LOGIN.COM), an overview of the aspects of VMS internals affecting program performance, and the usage of the VMS system debugger and the interprocess communications features.
Length of Class:	One 3-hour session
Date and Time:	February 14, 1989 (Tuesday), 1:30 p.m. to 4:30 p.m.
Location:	Building 221, Room A-261
Instructor:	To Be Announced

COMPUTER-BASED TRAINING COURSES

CTD currently offers 29 different computer-based training courses in CMS and six courses on the central VAX 8700. These courses are listed below. For further information on any of the courses, call the User Services consultants at extension 2-5405.

DEC CBT Courses on the Central VAX 8700

Course Name	Course Title
VMSCAI	Introduction to VAX/VMS
EDTCAI	Introduction to the VMS editor
LSECAI	Introduction to the Language Sensitive Editor
EVECAI	Introduction to the Extensible VAX Editor
DTRCAI	Datatrieve for Users
DTRPCAI	Datatrieve for Programmers
	IBM CBT Course
SLFTEACH	Introduction and Advanced Concepts of Xedit
	CRWTH CBT Courses
General Data Processing Courses	
DPINTRO	Introduction to Data Processing
DPDEV	Developing Data Processing Skills for End Users
DCCOMM	Data Communications, Connectivity, and LANs: An Introduction
ICUSER	Basic Information About Computer Information Center
Application System Courses	
ASUSE5	Using Application System for Inquiry and Reporting
ASPROJ	Managing Projects with AS
CICS Course	
CICSPI	CICS Concepts and Facilities
CMS Courses	
CMS	Using CMS
XEDIT	Using XEDIT
Cobol Course	
COBOL2	VS COBOL II: Making the Transition
Office System Course	
OFFICE	Office System Skills and Concepts
PROFS Courses	
PROFOVER	Overview of Using PROFS V2
PROFCAL	Using PROFS V2--Calendar
PROFNOTE	Using PROFS V2--Notes & Messages
PROFMAIL	Using PROFS V2--Mail & Documents
SAS Courses	
SASINTRO	Using SAS--Introduction & DMS
SASLANG	Using SAS--SAS Language
SASSTAT	Using SAS--Statistics
SASADVAN	Using SAS--Advanced Features
SASFSP	Using FSP--SAS/FSP
SASGRAPH	Using SAS/Graph
Tellagraf Course	
TELLAGRA	Using TELLAGRAF
MVS Batch Courses	
JCL	Introduction to Basic JCL
SORTMRG	Using SORT/MERGE Utilities
Basic Project Management Course	
MANAGE	Project Management Concepts and Principles (see also ASPROJ)
TSO Course	
TSOUSE	Using TSO
SPFUSE	Using ISPF
SPFPD1	Using ISPF/PDF for End Users (Section 1)
SPFPD2	Using ISPF/PDF for End Users (Section 2)
Miscellaneous Courses *(The following topics are part of the standard CRWTH courseware; however, the software is not installed at Argonne.)*	
ANSDB	Using Answer/DB
ADRUSE	Using ADRS II
DWRITE	Using DisplayWrite/370
FOCS1	Using Focus: Basic Reporting
FOCS2	Using Focus: Advanced Reporting
FOCS3	Using Focus: DataBase Maintenance and Design
IFUSER	Using IFPS
RAUSE1	Using RAMIS Information System: Basic Reporting
RAUSE2	Using RAMIS Information System: Advanced Reporting
RAUSE3	Using RAMIS Information System: DataBase Design and Management
RADMF	Using RAMIS II DMF
RDBUSE	Overview of Relational DataBase
SQLDB2	Using SQL/QMF (DB2): Basic Reporting
SQLDB3	Using SQL/QMF (DB2): Advanced Reporting
SQLDS2	Using SQL/QMF (DS): Basic Reporting
SQLDS3	Using SQL/QMF (DS): Advanced Reporting

☆ U.S. GOVERNMENT PRINTING OFFICE 1988—643-156/80006

HECKMAN
BINDERY INC.
DEC 94
Bound -To -Please® N. MANCHESTER,
INDIANA 46962

UNIVERSITY OF ILLINOIS-URBANA
3 0112 084233243